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*History of Southern
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PREFACE.

THE main portion of the matter making up this volume was written in the form of letters from the United States and Canada to the "Scotsman" newspaper, the proprietors of that journal having commissioned the writer to visit America with the view of giving to British farmers, through its columns, some trustworthy information on a subject threatening seriously to affect their welfare—namely, the importation of dead meat from the Far West. The letters have been carefully revised, altered, and supplemented; while four fresh chapters have been introduced—two on "American Shorthorn-Breeding;" one "Statistical;" and one on "What Science says to the Cattle-Feeder." The first and second refer to the supply of shorthorns in America, to their use in the improvement of the general cattle stock of the country, and to the leading features of shorthorn-breeding as now carried on in the United States. The Statistical chapter shows the amount of dead

meat imported from the United States since the commencement of the trade, and also indicates the figures at which the different varieties of American beef might be sold in British markets. The chapter on "What Science says to the Cattle-Feeder" is meant to give "backbone" to the practical recommendations in the chapter that precedes it.

ABERDEEN, *January 1878.*

INTRODUCTION.

WHEN the repeal of the Corn Laws, some thirty years ago, was supposed to have broken the strongest staff of the British farmers, they found some ground for consolation in a survey of their probable position. It was believed that, by quickening general operations, and extending their special care over another field up till that time partially neglected, they might yet live and maintain the position of their honourable calling. British meat-markets were still practically at the command of the home producer; and increased attention was forthwith directed to the breeding and feeding of cattle and sheep, which up to that time had occupied but a secondary place in the calendar of the British farmer, and which, in most parts of the country, were conducted in a primitive and unprofitable manner. The enterprise was capable of great development; and it developed rapidly. The supply and demand grew apace, while prices kept gradually moving upwards. For several years past the mainstay

of the Scottish farmer, and a strong support to his brethren in England and Ireland, has been the profit gained from beef and mutton.

No wonder, then, that great anxiety was aroused among British agriculturists, little more than a year ago, when they were told that, by a simple Yankee invention, the price of beef and mutton in British markets would be reduced 15 or 25 per cent. This time they saw no undeveloped branch of farming lying behind them upon which they might fall back, and to many the situation seemed far more threatening than during the Corn Law crisis. Our friendly rivals in the West have been sending us large quantities of cured meat for several years; while some four or five years ago numerous bold attempts were made to transport live American cattle across the Atlantic. The measure of success attained, however, was not satisfactory in either case; and it became evident that, if ever America were to send its beef and mutton as freely into British markets as it sends its grain, the meat would have to come in the carcase. But how was this to be accomplished? How was the dead meat to be kept fresh during a ten days' sea voyage? Few problems—commercial problems, at least—seem too deep for the inventive genius of the Yankee; and difficult as this one seemed, he at last laid bare its secret. He saw that tropical fruits were being conveyed from

the Southern States to New York, and kept perfectly fresh and sweet, by being enclosed in an atmosphere artificially cooled; and it naturally occurred to him that dead meat might be preserved during its voyage across the Atlantic in a similar manner. In the beginning of the winter of 1875-76 the experiment was tried, and, as all the world already knows, proved highly successful.

The imports were insignificant during the first six or eight months; but as the winter of 1876-77 approached they began to grow rapidly—reaching no less than 2,719,568 lbs. in October 1876, and 4,193,980 lbs. the following month. The arrivals increased alarmingly towards the spring of 1877, and, as might have been expected, the subject began to interest the public mind. Speeches were made upon it, papers read, and discussions took place all over the country; and turn where one might, the all-absorbing topic was “American beef.”

The following, from the leading columns of the “Scotsman” of May 2, 1877, affords a reflex of the position of the subject at that time, and also explains the origin and object of the matter that forms this volume:—

“Since the days when Sir Robert Peel removed the protective duties from foreign meat imported into this country there has not been a time of greater interest,



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FOOD FROM THE FAR WEST

Rev. Mr. Knibb

*Mr. W. D. Macdonald & Co.
Glasgow*

Received 21st Dec - 1884

FOOD
FROM THE FAR WEST

OR, AMERICAN AGRICULTURE

WITH SPECIAL REFERENCE TO THE

BEEF PRODUCTION AND IMPORTATION
OF DEAD MEAT FROM AMERICA
TO GREAT BRITAIN

BY

JAMES MACDONALD

AUTHOR OF THE HIGHLAND AND AGRICULTURAL SOCIETY'S PRIZE
ESSAYS ON THE AGRICULTURE OF THE COUNTIES OF
CAITHNESS, FIFE, ROSS, AND CROMARTY, ETC.

WILLIAM P. NIMMO
LONDON AND EDINBURGH

1878

alike to farmers and consumers, than the present, when the home trade finds in the American grazier a formidable competitor in the dead-meat markets. His competition is no longer merely threatened or experimental—it is an established fact, and a fact of rapidly-increasing magnitude. About a thousand tons of American beef and mutton, in perfectly sound condition, are now landed every week at Liverpool and Glasgow. The import of fresh beef into the United Kingdom during the month of March last was 60,162 cwts., or very nearly six times the quantity imported in March 1876. For the three months ending with March the quantity was 131,249 cwts., against 24,084 in the same quarter last year. Yet the trade is only in its infancy, and, so far as our present knowledge extends, there seems no reason to doubt that its growth will be checked ultimately rather by the limitation of means of transport or by the absence of demand than by deficiency of supply. Before either of these causes can come into operation, the import must necessarily have attained such dimensions as to have a direct and serious effect upon British farming, and many of our agriculturists are no doubt by this time earnestly pondering the question, What will that effect be? The community generally may have a different interest in the subject. A reduction of 2d. or 3d. a lb. in the price of beef would be an immense boon

to the consumer, and would assuredly be followed by an increase of consumption. But a like or approximate fall in the prices which the home grower of stock is able to command for his produce would in very many instances engulf his whole margin of profits. There is no necessity to pause here in order to demonstrate what has of late been sufficiently illustrated in our columns—that farming as a trade is not in as healthy a condition as is desirable. People conversant with the subject will be ready to acknowledge that at the present time the main dependence of a very large number of Scotch farmers is on stock; and a depreciation of from 15 to 25 per cent. in the market value of their principal commodity—which competent authorities, after careful investigation of the subject, believe will be brought about by the development of the American dead-meat trade—might be ruinous to numbers, and a cause of heavy loss to all. It must not be forgotten that, whether or not the public get the full benefit of the reduction in value, the meat-growers will feel, and very speedily feel, the full effect of it; the middlemen will take care of that.

“If the old Protectionist system had still been in vogue, this question would never have arisen; or, if it had, would have been disposed of by a prohibitory duty imposed on American meat at the instance of the landed and agricultural interest. But our farmers

themselves would nowadays be the last to demand that the whole nation should be compelled to pay twice the market value for meat in order that they might carry on their business at a profit. Nobody has publicly expressed, or is likely to express, the least feeling of hostility to the new trade. All that can be done is to take the facts as they are, to make the best of them, and to endeavour to gauge their full effect on the future of British farming. It is admitted on all hands that Scotch or English beef, if it can meet the American commodity in the market on equal terms, will always hold its own; but a difference of 2d. to 3d. a lb. in the price in favour of the imported meat will give that the preference. Not, indeed, in all cases; what is known in the trade as "prime Scotch beef" will, in all likelihood, continue, through its sheer superiority, to retain the first place in the public favour, and to command a price as high, or nearly as high, as that at which it is at present quoted. But while there is a certain difference of opinion as to the quality of the American beef, it is generally admitted to be on the whole quite as good as the second-rate home-grown meat; and if it can be permanently supplied at a considerably lower price, it will find a ready sale. In order, therefore, that the Scotch or English producer should know what he has to face, he must first have clear information on two

or three points. Can the American farmer raise beef and mutton of good quality, carry it across the Atlantic, and put it on the British market in sound condition, at 2d. a lb. below the present ruling prices for home-grown meat? If he can, what is the extent of the present available supply, and what the possibilities of its increasing in accordance with the probable demand on this side of the water? Without precise knowledge on these points it is useless to try to forecast the future prospects of British stock-farming; and such precise knowledge is by no means to be had for the asking. Much has been already said and written about the new trade, but the greater proportion of the statements made have been speculation and inference rather than the record of ascertained fact; and even the most valuable of them have been based on incomplete observation, or on merely local experience of American farming.

"Having this in mind, we have thought it expedient to take measures for giving to Scottish agriculturists the accurate information which is their first necessity in order to estimate the probable effect on their industry of the American competition. A member of the "Scotsman" permanent staff has been sent to the United States to examine into and report upon all those circumstances of American agriculture which have any bearing upon this subject. That he is thoroughly

qualified for the task we have some right to infer, because he has had long experience in the work of the agricultural department of the "Scotsman," has for several years attended in our interest all the important shows of agricultural stock, both in England and Scotland, and is perfectly familiar with the conditions of Scottish farming. In proof of this it may be worth while to mention that the gentleman in question is the author of the Highland and Agricultural Society's prize essays for the three successive years 1874, 1875, and 1876, on subjects connected with the agriculture of Scotland. His mission in America is to make the fullest possible inquiry into everything connected with the stock-raising department of agriculture; his whole time and energies will be devoted exclusively to this work; and in order that it may be effectually done, he is unrestricted as to the time he devotes to his investigations or the extent of their area. His chief aim will be to ascertain and to state facts; his own inferences from these may come at a later stage of the inquiry. These facts Scottish agriculturists will be able to compare and weigh for themselves; and in that way—and in that way only—will it be possible to determine the full significance of the competition of American cattle-growers in the British dead-meat market."

FOOD FROM THE FAR WEST.

CHAPTER I.

THE FEELING IN NEW YORK, AND POSITION OF THE TRADE THERE.

THE OUTWARD VOYAGE.—THE OBJECTS OF THE INQUIRY.—PROBABLE
EMIGRATION.—THE FEELING IN NEW YORK.—THE INTEREST AMONG
EXPORTERS, BUTCHERS, SALESMEN, AND FARMERS.—THE EXPORT-
ING TRADE OVERDONE.—THE EXPORTING FIRMS.—THEIR EXPORTS.—
THE PROCESSES OF PRESERVATION.—THE TOTAL EXPORTS OF BEEF
AND MUTTON.—NONE BUT CHOICE CATTLE EXPORTED.—WHERE
THEY COME FROM.—THE RELATIVE QUALITY OF BEEF AND
MUTTON.—THE IMPRESSION REGARDING THE TRADE AMONG IN-
TERESTED PARTIES.—NECESSITY THE ORIGIN OF THE TRADE.—
BROTHER JONATHAN'S AMUSEMENT AT THE TONE OF FEELING IN
BRITAIN.—A DARK PICTURE FOR BRITISH FARMERS.

DR JOHNSON gets the credit of having stigmatized a ship
at sea as "a prison afloat, with the agreeable chance of
being drowned." The remark may have been applicable
enough in the days of the celebrated Doctor; but, in these
later times, a trip across the Atlantic in a well-equipped
"Cunarder" certainly savours more of a ten days of
feasting and holiday-making at a first-class hotel than a
period of prison confinement. The "Algeria," a fine
iron screw steamer of 3376 gross tonnage, 500 horse-

power, and commanded by Captain Watson, a most attentive and efficient officer, steamed out of the Mersey for New York about noon on Saturday, the 31st ult. (March 1877), having on board forty saloon passengers and eighty-seven steerage passengers. We had a stay at Queenstown (waiting for the mails) of nearly nine hours, and for two days encountered a strong head wind, which culminated on the night of Tuesday, the 3d inst. (April 1877), in a gale which was strong enough to tear one of the sails to shreds. Nevertheless we were landed on *terra firma* in the New World about 4 P.M. on Tuesday, the 10th. After the gale subsided, the average daily "run" was about 325 miles; and from noon on the 9th till noon on the 10th we made no less than 345 miles. Except on the Tuesday and Wednesday of the first week (during the gale), the passengers found the voyage a most enjoyable experience. To most of us it was indeed a real holiday—recruiting both to body and mind. Tuesday was a beautiful day, calm, clear, and genial, with a bright sun overhead; and thus we got our first glimpse of the shores of the New World under most favourable circumstances. The view on approaching the mouth of the Hudson River has long been renowned as one of the finest sights of the kind in the globe, and to those of us on board the "Algeria" who had crossed the Atlantic for the first time it was indeed grand. A homeward-bound steamer passed us in the Hudson, and a silver-locked, good-humoured, Americanised Englishman, who had done much to while away the lonely hours at

sea by unfolding his inexhaustible stock of anecdotes and jokes, bawled out, "Guess that's a Guion steamer laden with American beef. Why, she's almost out of sight." She was indeed "deep" (to appropriate the parlance of our stalwart "hosen"), and, as inquiries the following day verified, a large part of the heavy cargo *was* American beef bound for the British markets.

In these few preliminary remarks it may be stated that those notes which it is proposed to publish will be confined, in the first place at anyrate, mainly to facts, along with any worthy American opinions that may turn up. The writer's own impressions may follow afterwards. It cannot be said that the amount of information that has been published regarding farming in the Far West is limited; there is, in fact, a great deal more literature of this kind referring to America than to Scotland, but (whether justly or unjustly it need not now be decided) complete reliance has not been placed upon those glowing accounts that have reached the Old World of the farming and prospects of the New, especially those which refer to the States in the South and Far West, which are as yet but partially settled and almost wholly uncultivated. One prominent object of the inquiries about to be made is to correct or verify those "glowing accounts." Too much must not be promised at the outset, but one thing at least shall be made certain, and that is impartiality. The notes shall be nothing if not impartial.

The "young" States in the South and Far West, of which least reliable information is to be had, are those that,

according to our present information, most immediately affect the importation trade, and therefore more attention will be bestowed on these than on the older and better known States, the published accounts of which are as a rule more trustworthy than those referring to the newly explored regions of the West. Should the American beef importations bring down the price of British beef to the extent of 15 or 20 per cent., and thus cut away the most important item of profit that can be had from farming in the Old World at present, in all probability large numbers of Scotch, English, and Irish farmers, especially of the former, will emigrate to America; and therefore the prospects held out to emigrants or settlers in the different States shall not be overlooked.

Considering the great interest felt in the matter in England and Scotland, it is rather surprising to find that the newly-opened enterprise has attracted very little attention in New York. It has received but scant notice from the newspapers, and in private circles it has seldom been a topic of conversation. Business men in New York seem to know that such a trade has been begun, but little more, and politicians have been so busy with election affairs of late that no other matters have obtained entrance into their craniums. Almost all the interest that has been shown on the subject is confined to those immediately connected with it—exporters, butchers, cattle-salesmen, and farmers. In these circles, however, a keen interest is manifested.

For some time Mr Eastman, New York, was alone in the trade, but now there are no fewer than seven firms

engaged in the experiment. Considering the ready sale and the favourable reception that Mr Eastman's first consignments met with, it was only natural to expect a large and speedy extension of the trade ; but there can be little doubt that it has already been overdone—that too many have embarked in the business, and that some of the firms may come to grief before things reach their level. A very considerable amount of capital is required by the exporter. He has to erect the refrigerators in the ships himself, and, besides having to pay a heavy premium for space in the vessels, he has to erect refrigerators at his killing-yard ; and, therefore, unless a very substantial return can be had from the British markets, his books would very soon show an ugly balance on the wrong side. All the lines sailing between England and Scotland and New York and Philadelphia—eight in number—carry meat, and now it is very seldom that a steamer leaves the Hudson for British ports without having on board several tons of both beef and mutton.

Mr Eastman is still the largest exporter. He ships, with the Bates process of preservation (by which cold air is fanned off ice on to the meat) by the Williams and Guion and the White Star lines to Liverpool, and by the Anchor line to Glasgow ; and his weekly exports average about 1000 cattle, or 4000 quarters of beef. Messrs Sherman & Gillet, Jersey City, export about 2000 quarters of beef weekly, using Dr Craven's process—a freezing mixture forced along pipes running between the rows of beef—to Bristol and Liverpool, by Cunard, Inman, and other

steamers. Messrs D. Toffey & Bros., Jersey City, ship about 1200 quarters of beef weekly, by the Banta (fanning) process, per the State line to Glasgow and the National line to Liverpool. Messrs Martin, Fuller, & Co., Philadelphia, ship about 1400 quarters of beef every week from Philadelphia, using the Bray (fanning) process, by the American steamers to Liverpool; and Messrs Morris & Sherman, who use Dr Craven's process, send 1000 quarters by the same steamers to the same port. Messrs Snowden & M'Conville export every week about 600 quarters of beef by three National steamers to London; and Mr F. Samuels sends 300 quarters of beef weekly to the same port, using the Smiley (fanning) process.

It will thus be seen that about 10,500 quarters of beef, weighing from 180 to 200 lbs. each, now leave New York and Philadelphia every week for the British markets; and in addition to this about 2000 carcasses of mutton are exported to the same markets weekly. Both sheep and cattle are brought into the stock sales either by the farmers themselves or in consignments by stock agents—the latter system being the more general—and then purchased by the exporters—cattle alive and sheep dead. After the animal is killed the meat hangs for about two hours to allow the natural heat to escape, and then it is hung in the refrigerators in the yard until transferred to the refrigerators in the ships. Large permanent refrigerators have been erected at the Jersey City Stock-Yards, and Mr Eastman has built and fitted up a large building for himself in New York City, while a new firm has leased an old slaughter-house in Jersey

City with the view of going into the export trade. Other firms than those mentioned are engaged in the export of sheep, but the mutton is all conveyed across the Atlantic in name of these firms, as in this way it can be carried almost free of all cost. The exporter pays so much for space in a steamer to erect a refrigerator, and between the rows of sides of beef there is ample room for a row of carcasses of mutton—space that would otherwise be unoccupied.

The cattle and beef exported are the choicest lots to be had, and, as a rule, the cattle come from Illinois, Kentucky, and Ohio, and the sheep from Ohio and Kentucky, and a few from Canada. Among the cattle that were being slaughtered at Jersey City Stock-Yards on the day of my visit to them, for export to Britain the following day, were a few very fair bullocks four and five years old, but still the large majority were inferior, rough, and ill-fed. A lot of calves, well bred, but lean, were stalled for killing, and several very nice quarters of stot beef were being hung into the refrigerators. A few pretty heavy carcasses of mutton were newly dressed, but the quality was far behind that of Scotch mutton, much inferior, in fact, to the beef that hung alongside. Yankees are rough butchers, and truly the sight in the slaughter-house was not inviting.

The general impression among the exporters, butchers, and cattle-salesmen is that the trade will speedily become large and permanent, and that it will continue quite as successfully during the warmest season in summer as in winter. They think that the supply is unlimited, and likely

to continue so ; that the rates of conveyance will remain as at present, or at any rate not advance much ; and that for at least twenty-five or thirty years the cost of beef production in America will remain as low as it is now. They do not think the exportation trade will affect the retail prices in New York to any appreciable extent. It had already raised the better quality of beef about one cent. per pound, but it is not expected that it will bring about a further increase. The cattle already exported seem to have been for the most part surplus cattle which, in the present dull state of trade, it would have been difficult to have got rid of advantageously at home. Necessity is still the mother of invention !

The salesmen and a few others I have met in New York seem greatly amused at the feeling on the subject in the old country. They are perfectly surprised at it. They cannot imagine how the people of the mother country can have the slightest doubt as to the ability of the United States to regulate the British meat markets. One gentleman argued that Britain's thriving child in the West would feed its venerable parent for all time coming ! He looked upon this exportation trade as a grand thing for the Union. What they want here, he said, is a whole host of honest, industrious Scotch agriculturists, with a fair amount of capital, to cultivate and people their vast prairies, and he is very hopeful that the dead-meat trade now going on so promisingly may do much good work in this way, by starving the "Britishers" out of their own homes, and forcing them to emigrate. Unfortunate British farmer ! thy days of plenty are past ! So says Brother Jonathan.

CHAPTER II.

THE FEELING IN GOVERNMENT CIRCLES.

HOW THE SUBJECT IS VIEWED IN RURAL CIRCLES.—A MULTITUDE OF BELIEVERS.—A FEW SCEPTICS.—EXPORTATION OF LIVE STOCK TO BRITAIN.—THE UNITED STATES GOVERNMENT AND AGRICULTURE.—HOW THE DEAD-MEAT TRADE IS VIEWED IN GOVERNMENT CIRCLES.—THE WANT OF OUTLET FOR PRODUCE THE GREAT BARRIER TO EMIGRATION.—INDIAN CORN USED AS FUEL.—THE DEAD-MEAT TRADE MAY FORM A NEW OUTLET.—WHAT THE COMMISSIONER OF AGRICULTURE SAYS.—ANOTHER INFLUENTIAL OFFICIAL'S OPINION.—THE EXPORTS OF MUTTON.—MUTTON AS AN ARTICLE OF FOOD IN AMERICA.—WOOL THE HARVEST OF THE AMERICAN SHEEP-FARMER.

NATURALLY enough, the talk in rural districts is more of corn and cattle than in busy commercial circles, and therefore one might be prepared to find that the newly-opened American dead-meat trade has excited much more interest among the farmers of the Union than in its large cities and towns. Among farmers and others interested in the live-stock trade it has been one of the chief topics of conversation and discussion since its commencement; and it is asserted that these farmers and cattle-dealers are fully alive to the importance and advantages of the new outlet for American farm produce, and that they are sparing no effort to secure for themselves and their country the full benefits of the new enterprise. It is said that they believe

firmly the trade will become a permanent and growing trade ; that they are perfectly convinced of their ability, for many years to come, to undersell the British farmer in his own market ; and that their time and attention are now being turned mainly to the rearing and feeding of a larger number of a better class of both cattle and sheep—all which, it is argued, will result (in less than two years) in the rearing and feeding of two stots of good quality where one above mediocrity was reared and fed before. Among the multitude of believers, however, there are a few sceptics—men with little confidence in the trade becoming permanent, or of its conferring any great advantage upon the States. They admit that the cost of production is likely to remain almost as low as it now is for twenty years—probably a quarter of a century ; but they think that the outlays for conveyance, especially on rail before the steamer is reached, will very soon become so high as to eat up all the profits and a great deal more. They also fear that the demand in the British markets will not continue long so large as at present ; that as soon as the atmosphere is clear of rinderpest the farmers of the continent of Europe will step in and take the place the United States farmers now occupy. Some also think it extremely probable that, once the novelty and agitation that now support the trade have faded away, American beef will not find so much favour among the meat-consumers of Great Britain. As yet I have met with nothing sufficient either to confirm or contradict any of these opinions and statements ; but, before leaving the States, I

may be able to sift at least some of them and see what they are worth.

Two firms—Messrs Snowden & M'Conville, and Mr Samuels—have been shipping live cattle from New York and Philadelphia for England for a few months past, and the other week a large cargo of live beeves left Boston for the same destination. It is not generally believed, however, that this trade will meet with anything like the same amount of success as the dead-meat enterprise. When the cattle get favourable weather on their way across, and are treated kindly and carefully, they are seldom much the worse for their voyage; but, with stormy weather and the rough treatment usually bestowed on animals in course of transit by sea, they invariably reach the British shambles in anything but good trim for slaughter. The beef, in fact, often gets greatly damaged. Some think that the exporting of young lean cattle to England and Scotland, to be fed there, would form a more wholesome and more hopeful trade, and it is probable it may be tried soon.

The United States Government throws the Government of Great Britain far into the shade with regard to the attention it bestows upon agriculture. It has had a distinct well-equipped Department of Agriculture for about twelve years, and spends a considerable sum of money every year in the promoting of agriculture, both scientifically and practically. In fact, the Government seems to recognise (in the words of a Senator) that the "hopes and interests, and indeed the prosperity, of our country are

dependent upon the success of agriculture." At the end of the fiscal year—in the month of July—a large official volume is printed and circulated freely, giving the proceedings of the Agricultural Department during the year, and containing long and suggestive reports by the Commissioners of Agriculture, by the Statistician of the Department, by the Entomologist, and by the Chemist, along with statistics of the extent under the different kinds of crops, their yield per acre and value, and the number of the various kinds of stock and their estimated value (average and total) in the different States; as also numerous papers by able writers on various subjects connected with agriculture, forestry, industrial education, and other rural matters. The subject to which these letters specially refer is regarded at headquarters at Washington as one of the utmost importance, and considerable attention is being directed towards it. The Statistician-in-Chief (The Hon. Edward Young) has been gauging the growth of the trade, and calculates that, should it continue to grow at its present rate for other two months, the total value of the exports of beef alone to Great Britain for the year ending with June will amount to about three million dollars, or £600,000.

It has been found that one of the main difficulties which emigrants to the Far West, and, indeed, farmers in all the more recently-opened States, have to contend with is the want of proper outlet or market for their produce. There is no local consumpt; none to feed within easy reach save those who cultivate the land. The cities and

towns along the coast and in the eastern division of the Union are already fully supplied by the States immediately around them, and the farmers in the West, if advantageously situated with regard to the cost of production, are handicapped to more than a corresponding degree by the cost of conveyance from their far-off lands to the markets in the East. In such States as Kansas, Colorado, Nebraska, Missouri, and Arkansas, almost any amount of grain and beef might be produced; but what object would there be in raising large quantities of these commodities when there is no demand, no outlet, no market, and no local consumpt except by those who cultivate the soil? I have the best authority for stating that some farmers in the West who had grown large crops of Indian corn (or maize) the other year found that the most profitable way they could possibly dispose of their surplus corn was to utilise it as fuel! "And splendid fuel it made," added my informant.

The Government naturally desires very much to see the Western States settled and cultivated; but it is felt that emigrants can scarcely be expected to go westward in shoals and buy lands when no market exists, either far or near, for farm produce. And it is because it is hoped and believed that the exportation of dead meat to Great Britain may to some extent meet this keenly-felt want that the subject is being watched with so much interest by the Government and the farmers. The Hon. Mr Frederick Watt, the Commissioner of Agriculture—an aged gentleman of extensive experience both of scientific

and practical farming—seems well versed in all the bearings of the subject, and is very hopeful of the continuance and development of the trade. He does not think the cost of conveyance is likely to rise; and unless the value of Indian corn, upon which the cattle are fed, increases, the cost of production will long remain as low as at present. He thinks that the trade, should it continue and extend, will have a most beneficial effect upon the farming of the Western States. Hitherto the general system of farming in the West has been the raising of cattle and sheep, and a little wheat and Indian corn—the cattle being sold in lean condition at very low prices to eastern farmers for feeding, the sheep kept solely for the purpose of growing wool (which, by virtue of its being easy to convey, is a favourite and generally a profitable product in all out-of-the-way regions), and small quantities of the wheat and corn carried to other States farther east. Mr Watt, however, thinks that, should the exportation of dead meat continue, western farmers will feed a great many cattle themselves, and thus turn their live stock and corn to much better account than they have ever yet been able to do. Indeed, feeding has already been commenced in some parts of the West, and Mr Watt says this is due entirely to the inauguration of the export trade.

Another influential gentleman at headquarters in Washington thinks the trade will ultimately do much good to the States, though (he jocularly remarked) “it will not likely create a revolution on either side of the Atlantic.” I asked him if he thought the trade would continue, and he replied,

"Yes, unless you can raise beef cheaper than you are doing, and unless the cost of production here increases, which is not at all probable. I do not think, however, it will enlarge greatly, at anyrate for some time to come. None but the best beeves will suit the British markets; and if the number exported is largely increased, the average quality will be reduced and the prices lowered, so that the trade would become unprofitable."

No one in political or agricultural circles, or elsewhere, seems so confident of the export of mutton becoming or continuing so extensive or so profitable as that of beef. Mutton is not considered an important article of food in America, and the feeding of sheep has received but very little attention from its farmers. Sheep-farming is certainly carried on very extensively all over America, especially in the Western States of the Union and on the Pacific slopes; but, with a few exceptions in the older and Eastern States, the sheep-farmer's whole harvest is his "clip" of wool. There is no demand for mutton, and therefore he prepares none. He keeps a class of sheep specially adapted for producing wool, and allows his old sheep to die away naturally, or go where they may—that is, if he cannot dispose of them, even for a mere trifle, before they reach the ripe old age of eight or nine years.

CHAPTER III.

THE EASTERN STATES.

ON THE RAILWAY FOR THIRTY-SEVEN HOURS.—AN EMIGRANTS' CAR.—
THE FATE AND PAST HISTORY OF THE EMIGRANTS.—THE STATES OF
NEW YORK AND NEW JERSEY:—THEIR CHEESE MANUFACTORIES.—
PENNSYLVANIA:—ITS MINING INTEREST—ITS EXTENT—ARABLE
AREA—CROPS—THEIR YIELD—NUMBER AND VALUE OF LIVE STOCK
—POPULATION.—THE COMMISSIONER OF AGRICULTURE'S DESCRIPTION
OF PENNSYLVANIA FARMING.—NOT A LAND FLOWING WITH
MILK AND HONEY.—MARYLAND:—ITS EXTENT—ARABLE AREA—
CROPS—SOIL—NUMBER AND VALUE OF LIVE STOCK.—WEST VIR-
GINIA:—EXTENT—ARABLE AREA—NUMBER AND VALUE OF LIVE
STOCK.—EAST VIRGINIA:—AREA AND SURFACE—EARLY SETTLE-
MENTS—SOIL EXHAUSTED—SETTLERS IN BAD CIRCUMSTANCES—
SCOTCHMEN AT TOBACCO-FARMING—CROPS AND LIVE STOCK.—THE
TWO CAROLINAS.—GEORGIA.—MORE FRUIT THAN BEEF.

THIRTY-SEVEN hours of a continuous railway ride is quite enough to tire one out; and the unexpected announcement a couple of hours ago of a compulsory "put up" here (St Louis) for the night was pleasant to the ears of several others as well as the writer. That length of time on an English or Scotch railway would be almost insufferable; but here the accommodation and comforts provided in the "cars" are so complete that one feels a moderate journey, say of ten or twelve hours' duration, pleasant instead of tiresome. And on this journey from Washington everything we could have wished for was done for our comfort, if we except the be-

haviour of an over-officious conductor, who suspected my neighbour's ticket and my own, by their length (nearly two feet, made up of a check for each line and branch passed over), to be emigrants' tickets, and rather rudely ordered us away into the next compartment. My companion was indeed an emigrant, a young farmer with moderate means, who had laboured in vain in the East of the Union to make ends meet, and who, therefore, had been induced to try his fortune in the wilds of the West. Already his hardships had begun, for he had to shoulder his portmanteau and move in amongst squalling children and "piles" of baggage. Though not an emigrant, nor the possessor of an "emigrant's special," I felt curious to see this little "chamber of horrors," so carefully reserved for holders of long tickets, and paid it a flying visit. I found it crammed with emigrants from the Eastern States, chiefly Virginia and Maryland, to California, Texas, Colorado, Kansas, Missouri, and elsewhere in the West. They numbered in all about forty, and the majority seemed to be young and middle-aged men. There were three or four young families, one consisting of the middle-aged, hard-worked, weather-beaten father, three little boys "like steps and stairs," and the careworn mother with babe at breast. Previous to the war, these unfortunate people had little reason to complain of their lot in the East; but their district had borne the heat of the campaign, and had suffered dreadful havoc in its course, and since then matters have been sadly changed. In hopes of better times they had toiled for years in greatly reduced circumstances at their devastated homes, only to be starved out

at last by the increasing dulness of trade. This, however, by the way.

To begin at the beginning, it may be stated in a sentence that the States of New York and New Jersey affect but very slightly the beef and mutton supply of the United States. They are taken up chiefly by dairy farms and farms for small produce to supply the New York and Jersey City markets. There are a great many cheese manufactories in the State of New York, and the quantity of this commodity exported every year is extremely large. Pennsylvania is said to contain as much coal as all the other States in the Union put together, and the working of coal-mines forms its chief industry; but, nevertheless, farming is carried on in it to a very considerable extent. The State extends to 29,440,000 acres, and in 1875 the area under Indian corn was 1,000,000 acres; wheat, 1,101,449; rye, 231; oats, 1,083,333; barley, 22,608; and buckwheat, 116,000—total under grain crops, 3,323,621 acres. Under potatoes there were 127,604 acres, and under hay 2,181,818 acres. Indian corn yielded an average of 40 bushels per acre; wheat, 13; rye, 13; oats, 30; barley, 23; buckwheat, 20; potatoes, 96; and hay, about one ton. At the 1st of January 1876 there were 837,000 milch cows in the State, estimated at an average value of about £7 a-head; 708,100 oxen and other cattle, valued at £6, 15s.; 1,640,500 sheep, valued at 14s.; and 875,000 hogs, valued at £2, 6s. The population of the State in 1870 (the last census year) was 3,519,601.

The Hon. Mr Watt, Commissioner of Agriculture, who stays in Pennsylvania "when at home," assured the writer

that Pennsylvania is one of the best-farmed States in the Union. Most of the farms are small—few are over 100 acres—and especially in the western part of the State, in the counties of Washington and Fayette, the system of farming is so thorough and advanced that the farms get the dignified title of “garden farms.” One of these 100 acre farmers, Mr Watt says, grows in a season 1500 bushels of Indian corn, 2000 bushels of wheat, and buys in at the fall (about September) 50 head of two and three-year-old oxen from the West, weighing (live weight) about 900 lb., at from $4\frac{1}{2}$ to 5 cents (from $2\frac{1}{4}$ d. to $2\frac{1}{2}$ d.) per lb., and feeds them off by next spring on corn, hay, and straw, weighing alive from 1200 to 1300 lb. a-head; or from 700 to 780 lb. in beef. Very good work, certainly, and I regret that time would not allow me to visit those pretty garden farms and see the prime 1300 lb. bullocks. The sheep stocks are mainly Cotswold crosses, with a few merinos, bred partly in Pennsylvania and partly brought in from the West. Very few sheep are fed, the flocks being kept solely for their crops of wool. Alderney and Jersey cows are largely in the majority on dairy farms, and, as a rule, shorthorn crosses fill the feeding-byres. Almost all this immense State has been bought up, and the greater part of the better lands cultivated; but, judging from the numerous small, wretched-looking homesteads, the thin, red, sandy soil, rough surface, little, lean, unshapely cattle, inferior horses, and bad cultivation I observed from the train the other day, the State is not all a garden of fertility, nor a land flowing with milk and honey. Most of the soil, indeed, seemed miserably thin,

and in some places wet, and houses, roads, fences, and general cultivation wretchedly bad. Here and there, however, the grass was coming away fairly, and several small wheat-fields had a most luxuriant appearance.

The little State of Maryland comes next. It extends to 7,119,360 acres, and about one-seventh of the area was under grain crops in 1875. Barley is not grown here at all, and the average yield of the other varieties of grain is really very poor, much of the soil of this State being very inferior. A great extent, in fact, is so poor that it will not produce even vegetables that can be presented in the Washington or Baltimore markets. At 1st of January 1876 this State contained 100,700 cows, valued at £6; 119,300 oxen and other cattle, valued at £4, 10s.; 141,200 sheep, valued at 15s.; and 233,500 hogs, worth £1, 8s. each.

Originally West Virginia and East Virginia, which lie south of Maryland and Pennsylvania, formed one State, but now they are two separate and distinct States. West Virginia extends to 13,125,280 acres, and contains an immense area of rough waste hilly land and thin soil, but still there are a good many spots of very fair agricultural land. The area under all kinds of agricultural crops in 1875 was scarcely 900,000 acres, and the average yield was considerably under that of Pennsylvania. On the 1st of January 1876 cows numbered 125,500, and were valued at £5; oxen and other cattle, 235,200, and were valued at £4, 4s.; sheep, 544,500, valued at 10s.: and hogs, 248,400, valued at £1, 1s. East Virginia extends to 26,240,000 acres, and is less mountainous than the

western division, but it also contains a great extent of inferior soil.

It is admitted that the extent of really good land in Virginia is indeed very small ; but still early emigrants were induced to settle there and make their best of the thin soil near to the markets, in preference to going farther west, where the soil is good, but the distance to markets immense. A distinguished United States Government official, a gentleman of authority on labour and emigration, told me the other day that, when applied to for advice by intending emigrants, he had invariably counselled them to settle in Virginia instead of the West, believing that Virginia, even with its bad soil, was preferable to the rich prairies of the West, by virtue of its proximity to the centres of consumpt. Others have, no doubt, reasoned likewise, and thus it has happened that Virginia, though containing comparatively a very small percentage of good agricultural land, is one of the best-settled States in the Union. In fact, it has received a great many more settlers than it deserves, or than, under the present circumstances, it is capable of sustaining, as the emigration that is now going on from it to the West plainly indicates. In the days of slavery, the white inhabitants of Virginia were pretty well off ; but from the shake-up it received by emancipation it has never yet recovered. Free labour is being adopted very slowly, and, on the whole, it cannot be said that the State of Virginia is in a prosperous condition. A large body of Englishmen settled here in the early days of emigration, and for a very long time their industry and outlays were tolerably well repaid ; but I

have it on the authority of an influential English gentleman resident in Washington, that many of these English settlers and other Virginia farmers are now in bad circumstances, working on in the hopes of trade reviving, and becoming further reduced in means every successive year. Trade is so very dull that even in Virginia, this gentleman says, farmers cannot find market for their produce at anything like remunerative prices—some at no price at all. There are also a great many Irishmen engaged in farming in this State, and it seems the majority of these are anything but comfortably situated. At Washington, the other morning, I happened to join at breakfast a gentleman hailing from Scotland, but resident in Virginia for many years, and I learned from him that what I had been told by the English gentleman referred to was perfectly correct. Farming, he said, seemed to be at a discount. There are a good many of his own countrymen in Virginia, and the majority of these have left the system of farming they had been accustomed to in their native land, and taken to the manufacturing of tobacco, and, he added, “they are making a good thing of it.”

The population of East Virginia in 1870 was 1,224,961, and the area under all kinds of farm crops in 1875 was very close on two millions of acres. At the 1st of January 1876 cows numbered 227,000, and were valued at £4, 10s.; oxen and other cattle, 397,500, estimated at £3, 7s.; sheep, 356,400, valued at 11s.; hogs, 589,800, valued at 17s. Indian corn yielded 22 bushels per acre; wheat, 8; rye, 9; oats, 15; buckwheat, 17; potatoes, 82; and hay, about one ton.

North and South Carolina are considerably larger than East and West Virginia, and have a greater extent of cultivated soil ; but the yield of the various kinds of grain is smaller even than in Virginia. Wheat in Carolina yields only about 7 bushels to the acre ; Indian corn, 15 ; and oats, 13. Cows in these two States number 360,000, valued at £3 ; oxen and other cattle, 500,000, valued at £3 ; sheep, 400,000, estimated at 6s. ; and hogs, 1,000,000, valued at 16s.

In Georgia, which extends to about 37 millions of acres, grain yields still less than in Carolina, although its area under grain crops in 1875 was very little short of 3 millions of acres. Cows number 265,100, valued at £3, 12s. ; oxen and other cattle, 490,900, valued at £1, 15s. (!) ; sheep, 371,200, valued at 7s. ; and hogs, 360,700, valued at 15s. Florida and the other States in the South-East are mainly devoted to the raising of cotton and fruit, and have very little to do with the American dead-meat trade.

CHAPTER IV.

TEXAS.

LOQUACIOUS FELLOW-PASSENGERS.—TEXAS—A "WONDERFUL COUNTRY."—TEN YEARS' EARNINGS IN CALIFORNIA.—A HINT TO BRITISH FARMERS.—CULTIVATION IN THE UNITED STATES.—A SWEEPING CHARGE.—THE EXTENT OF TEXAS—SURFACE—CLIMATE—POPULATION—SETTLEMENT.—THE ADVANTAGES TEXAS OFFERS TO SETTLERS.—WHAT ITS "TRUMPET-BLOWERS" SAY.—ARABLE AREA.—CROPS—THEIR YIELD AND VALUE.—NUMBER AND VALUE OF LIVE STOCK.—THE CATTLE OF TEXAS—THEIR ORIGIN AND CHARACTERISTICS.

"TEXAS, I bet, is a wonderful country. Why, a friend of mine, Mr C——, has a large ranch in the north-west of Texas, and he used to kill steers, the fattest beef I ever saw—fatter than anything ever fed in the house in Middle Tennessee, where I was born and raised myself—and they never got nothing but their pickings on the ranch. Why, it is easy for North farmers to feed cattle on corn and stuff in the house, but down here they feed themselves on the grass." These were the emphatic protestations of a loquacious fellow-passenger on the Iron Mountain Railway the other day, while labouring hard to convince an equally talkative, but somewhat sceptical (on this point, at least), Northern farmer of the superiority of the lands of the South compared to those of the North. The eloquent representative of Middle

Tennessee (whose form, by the way, did not speak very well for the feeding qualities of the land that gave him birth and "raised" him), I could easily infer, had lands in the South for sale, but on what particular spot I could not gather—most probably in that "wonderful country," Texas. Shortly afterwards the discussion, which came to no satisfactory conclusion (American discussions of the kind seldom do), was abandoned, and he took his departure, and his combatant came to question me. Having learned that I was going to Texas, and that I was only a visitor, and not an emigrant, he proceeded, "Oh, you'll just go through Texas, and over the hills to California and Oregon, my old country, and come and see our farming in Iowa on your way back. I left New York many years ago, and went to California by sea, and began to work my way back again by land—driving cattle or horses, or cutting wood, or anything I could get employment at. It took me ten and a-half years to reach the East, but when I did land I had eight thousand dollars (£1600) in my pocket. Why, people sometimes laugh at us old country folks, but I bet we generally get along as well as many. I come from England; you come from Scotland, I suppose?" I touched upon the beef question, and got a cautious reply—"I believe it's hurting some of you across the water a little, is it?" I assured him that if the trade continued it might do so, and he exclaimed, with an air of authority, "I'll tell you what you must do. You must leave off the cattle business, and turn right round and raise horses, and you will make money. We are immensely in want of good horses, and cannot raise them ourselves. We will pay

you large prices for them, and will supply you with beef cheaper than you can raise it; and, besides, if you do this for a few years, and leave us to supply your beef markets, our cattle stock will be so reduced as to be insufficient for our own wants, and then you can turn back to your old cattle trade, and make money by selling them to us to fill up our herds. Our stock of cattle would not last more than two or three years if we had your markets as well as our own to supply." This latter opinion, it may be stated, is shared in by a good many on both sides of the Atlantic.

My loquacious, intelligent, and practical friend continued, "We have a beautiful country in Iowa, but a changeable climate and very heavy winters. We don't raise such big cattle as you do, but we raise good beef cheaper, and pork we raise much better and cheaper both. But our farming is shamefully bad. Why, I have farmed both in the old country and in the new, and I assure you our people here don't know the first principles of farming. We leave our land full of weeds, never cultivate it half, and take no care that our seeds are pure or good." This sweeping charge, it seems, is well founded, for large portions of the arable land I saw on my way south displayed the most wretched cultivation I have ever seen anywhere, the Island of Lewis, where the *cras croom* or spade-plough still reigns, included.

But I am now in Texas, and must do justice to it. Few people in Great Britain, when they talk or read of Texas, have any idea that they are talking and reading of a country about five times the size of England, or of an area of over one hundred and seventy-five millions of acres—to be exact,

175,587,840. This "wonderful country" forms the southwestern point of the United States, lies between 20 degrees and 36 degrees north latitude, and returns the roll of the genial Gulf of Mexico for about 400 miles. From east to west it measures 800 miles; and from north to south, 700. A very large extent is "rolling" prairie and woodland, lying at an elevation of under 1000 feet; but still there is an immense area of mountain ranges and high table-land, varying from 2000 to 5000 feet above sea level, the highest point being 5896 feet. Its climate has been the subject of much diversity of statement. Some say they would not change it for any other climate in the world; others hold that it is unfit for the habitation of white men. As far as I can learn, the "mean" of these two extremes would come pretty near the truth. In a country lying between the frozen and tropical regions it is certain that the climate will be characterised by rapid changes of heat and cold, and probably these rapid changes are the worst features of the climate of Texas, as well as of the Northern States of the Union. The middle States have more equability. Both in summer and winter it is warm in Texas, except when a "northern" sweeps down upon it (the Texans have little love for anything hailing from the North), and then the atmosphere is chilly as long as the north wind lasts. Sometimes, in the space of five or six hours, the thermometer will fall from 82 or 83 to 50 or 53 degrees when a "northern" springs up suddenly. In this beautiful little town (Galveston) of about 30,000 inhabitants, and all along the coast, the heat is tempered by a constant breeze from the Gulf, and the thermometer seldom

exceeds 90 degrees in the shade; but in the interior the heat is, often very intense—much too intense for white men to labour in the height of the day. Snow falls occasionally, but never lies more than a few hours; while winter often passes without the pools ever being coated with ice. Vegetation begins very early, and several varieties of fruit and other garden produce have been in use for a couple of weeks. On the whole, it must be admitted that the climate of Texas in spring and summer is not conducive to health, as may be imagined from the fact that, with the view of checking the spread of fever and such contagious diseases, Texan cattle are prohibited from crossing the Red River into the Northern States during these seasons.

The population of Texas in 1850 was not much over 200,000; in 1870 it was little under 800,000; and since then the increase must have been very great. Long after several of the Eastern States were settled by Europeans, the wild ranges that now form Texas were the joint domain of numerous races of Indians, the wild horse, the buffalo, and all kinds of prairie game. A colony of Spaniards, planted in Mexico about three centuries and a-half ago by Cortez, gradually spread eastwards, embracing Texas shortly afterwards. The first European settlement, however (by a body of Englishmen, composed mostly of men who had already been located in the Eastern States for some years), dates back only about 150 years, the chosen spot having been San Antonio, one of the richest parts of the State. Other white men gradually followed, and soon wild wars arose with the Spanish-Mexicans for

possession, which ended in the State being wrested from the latter in 1836, the forty-first anniversary of the surrender of the last Mexican leader having been celebrated with great rejoicing in Houston the other week. Texas was annexed to the United States in 1845, and is by far the largest State in the Union.

Early in its existence Texas found numerous writers ready to bring its claims prominently before the emigrant; and, of course, most of these authors (like the trumpet-blowers of every other State in America) went the length of declaring that their "subject of notice" possessed "more advantages and offered greater inducements to the industrious settler than any other State in the Union." Among the facts adduced by one writer to prove this were these two—(1) "That a cow can be raised in Texas at less cost than a chicken in any other place in the United States; and (2) that more children are born in Texas in proportion to the population than elsewhere, and more in proportion raised to adolescence!" But, after all, it would seem that the rich resources of Texas are only now becoming properly known, thanks to the energy of those railway companies and private individuals who have procured possession of large portions of its land, and advertise it for sale on *favourable terms*. Probably a *mean* may have to be struck in this also.

The total area under the various kinds of farm crops—Indian corn, wheat, rye, oats, barley, potatoes, and hay—in 1875 was about 1,700,000 acres; the area under Indian corn being about $1\frac{1}{2}$ million; under wheat,

140,000; and hay, 60,000 acres. Indian corn yields an average of 20 bushels per acre, which, according to the market rates of 1875, were worth £3, 4s. Wheat averaged 18 bushels, worth £4, 8s.; rye, 18 bushels, worth £3, 16s.; oats, 32 bushels, worth £4, 12s.; barley, 30 bushels, worth £5, 12s.; potatoes, 100 bushels, worth £24, 8s.; and hay, about one ton, worth £3.

On the 1st of January 1876 the number of cows in the State was 500,100, and their estimated value about £3 a-head; oxen and other cattle more than 2,343,700, but were worth only £1, 18s. on an average; sheep numbered 1,691,400, and were valued at 8s.; and hogs about 1,000,000, worth 16s.

Regarding the history and characteristics of the Texan cattle a sentence or two will suffice. They are indeed none else than Spanish cattle, direct descendants of those unseemly, rough, lanky, long-horned animals reared for so long and in such large herds by the Moors on the plains of Andalusia. The Spaniards who discovered Mexico, and afterwards settled in Texas, brought cattle with them, and so exclusively have the descendants of these been reared in Texas that the Texan cattle of to-day may be called full-blooded Spaniards, inheriting and displaying all the characteristics of the herds that roamed on their native plains. In Texas, these imported cattle, though comparatively tame and quiet at home, had such unlimited ranges to wander over that they very soon became perfectly wild, bounding off with fury at the sight of a human being; and even yet many of the herds are in

a semi-wild state, and so furious that a man on foot could not venture to approach them. The herd-boys are all mounted, and the wild cattle know a man on horseback and run from him ; but a man on foot is a stranger and an enemy to them, and in many cases they at once give battle. Under these circumstances, it is not at all wonderful that the millions of cattle now roaming at large in Texas deserve no higher praise than was bestowed on the original breed. The characteristics of the Spanish breed, as generally recognised, may be summed up thus—long, spreading, half-turned backed horns ; long legs ; thin, lanky body ; big, ill-put-together bones, throwing the body high at the hooks and low on the rumps and loins ; coarse head, thin thighs, light waist ; and various colours, generally yellow, red, roan, dun, and black, with very often an iron-coloured stripe along the back. They have never been regarded as good milkers, and their beef, as a rule, is inferior. I have already seen nearly twenty thousand Texan cattle ; and though there certainly were a few very fair beasts among them, I could not modify any of the above terms in describing an average specimen.

CHAPTER V.

TEXAS: ITS SOCIETY, THE EASTERN DISTRICTS, AND LAND TENURE.

A SUNDAY IN A TEXAN VILLAGE.—A SABBATH-BREAKING COMMUNITY.
—A GHASTLY GRAVEYARD.—REVOLVERS AND BOWIE-KNIVES.—
CATTLE—"LIFTING."—HORSE-STEALING.—A THIEVING DIFFICULTY.
—STAGE-COACH ROBBERIES.—A RUN THROUGH THE EASTERN DISTRICTS.—A HOWLING WILDERNESS.—A TERRIFIC THUNDERSTORM.
—A BEAUTIFUL PRAIRIE.—FIFTY THOUSAND CATTLE.—A TEXAS
PACKERY.—OLD-COW BEEF FOR ENGLAND!—MR BUTLER'S RANCH.
—TENURE OF GRAZING LANDS.—SYSTEM OF COMMON PASTURAGE.

A SUNDAY in a Texan town presents many sights one is not accustomed to see in orthodox Scotland on that much-revered day of rest. In the "land of brown heath and shaggy wood," at any rate in its rural districts, one's ears are seldom offended by the persistent shouts of the "shoe shiner," the crack of the sportsman's gun, the sharp tap of billiard-balls, the rattling of beer-jugs, the scraping of the barber's razor or the clipping of his shears, or a general hubbub among groceries, cloth, bakery, drugs, iron-ware, and such commodities. Nor is he accustomed to see the short interval in church before the arrival of the "divine" spent in reading newspapers, or in barefaced flirtation; nor to witness the quiet hours of a Sunday afternoon whiled away by a round at the "thimble trick" for "only half a

dollar," or casting "dice," or manufacturing patent soap when all "other sports" lose their power to please. Yet all these sins and many more have to be answered for by the worldly inhabitants of a Texan village named Texarkana, and situated at the north-east corner of the State, where the writer had to "lie over" last Sunday. On the spot where this modern Sodom now stands "mine hostess" of the Cosmopolitan ("the only first-class hotel in the town," according to the boy at the station) built the first house less than five years ago, and, like most American institutions, the village seems to have grown up at mushroom pace. It has a population of over 3000, an uncongenial mixture of negroes and half-breeds, Americans and Yankees, Germans, Frenchmen, and Irishmen, with a few Englishmen and two or three sons of Caledonia. Its surroundings are wooded and picturesque, and a walk round the suburbs in the cool of the evening (it was very warm during the height of the day, the thermometer standing at 82 in the shade) seemed likely to dispel not a little of the feeling engendered by the Sabbath-breaking community, till bad was made worse by my chancing to stumble upon the village graveyard—a rough, uneven, unfenced, thicket-covered mound, with graves scattered here and there between the bushes, some partially filled in, others with ugly holes nearly two feet deep dug out of them, and one almost wholly open, the coffin being strewn round it in pieces! A herd of hogs grunted close by, and evidently some of these tidy gravediggers deserved credit for part of this unseemly work.

The thickly-populated centres since visited wear a more

civilised and quieter appearance, but on the whole it must be admitted that the tone of morality in Texas is not particularly high. Foul deeds with the revolver and bowie-knife are frequent occurrences. Stage-robberies take place every other day, and even the wild depredations of Rob Roy himself and of those that followed him were as nothing compared to the amount of cattle, horse, and sheep "lifting" now going on in Texas. Hundreds of men make a living—many have made fortunes—at this lawless system of farming, and an example of how it is carried on by some on a small scale came under my notice the other day. Just as I was arranging for a "buggie" with a stable proprietor, two men came asking his advice on a "thieving difficulty," as one termed it. A young man had borrowed a mule from one of these men the previous evening, to assist him into town for some clothes. On reaching the town, however, he sold the mule to the other man of the two for 85 dollars, had taken the saddle with him, and bought another smaller pony and bolted! When stock thieves are caught, they are often hung from a tree, without any trial whatever, by those from whom they have stolen, and stage-robbers are hunted up by Government and tried and punished severely—for stage-robbery, or, in other words, the stealing of mail bags from mail coaches, is a Government offence. But a man who robs another of his life has only to set up the slightest possible amount of provocation to secure pardon and release. The law on this point is frightfully lax, and hence murder has become almost as common here as theft in Scotland. A quiet, gentlemanly-looking fellow was pointed

out to the writer yesterday as having the distinguished reputation of shooting eleven men in different quarrels ! With all this wild work, however, it is only fair to state that a careful, inoffensive man, who *minds his own business* (an important point in America !), can make his way through Texas without alarming danger.

Those who make it their business to uphold Texas as one of the finest though least known countries in the world tell us that in entering it by the line of railway in the eastern districts the visitor sees the poorest part of the whole State at the very outset. And certainly it may well be said ; for a more uninviting country than that part of Texas which the line passes through after leaving Texarkana for Galveston it would be difficult to conceive. For more than three hundred miles the railway runs through a wilderness of scrubby, ill-grown wood, apparently of little value except as fuel, and sitting closely on the ground. Occasionally, near a small creek or streamlet, or along river-bottom lands, a belt of very fair trees carried their erect trunks above the shaggy, stunted pines around ; now and again, on an undulating elevation, a small spot of cultivated land, dotted with trunks of half-burned trees, and having a lonely log-shanty on one side, broke the monotony ; but with the exception of these novelties, which were few and far between, the run for two hundred miles south from Texarkana was through the most uninviting, unvarying ranges of country I have ever yet seen. Heavy rains which had fallen recently made matters worse by flooding a great stretch of the land ; and then the soil, too, is miserably bad, mostly thin, red,

hungry sand. The few patches of arable land showed a slight admixture of black soil ; but from the grass growing there it could easily be seen that there was no great depth even on these chosen spots. Indian corn was evidently the prevailing crop, but a few rigs of wheat were seen, and had a fresh, healthy appearance. In several parts of the wood, too, there was a covering of strong rank grasses, pastured by small, ill-conditioned cattle ; but, on the other hand, great stretches carried very little that animals could eat.

The journey from Texarkana to Galveston lasted from ten o'clock on Monday till about the same hour on Tuesday. Shortly before midnight on Monday a terrific thunder-storm broke out—wilder than anything I have ever seen at home, and, I believe, the heaviest and most damaging that has been experienced here for several years. Hail and rain fell very heavily, and lightning flashed about with great vividness, illuminating the wilderness for miles around with pantomime brilliancy. By daybreak on Tuesday we were within sixty or seventy miles of the shore, and gliding smoothly through a broad, level prairie, dotted with thousands of cattle, and displaying a soft green carpet of rich grasses. What a change from the howling wilderness left behind ! There was no variety here, but still the monotony was beautiful, and as pleasing at the end of our run of seventy miles as when it first disclosed itself to view.

The soil on the prairie seemed light also, and a closer examination since leads to the opinion that it is unsuitable for cultivation, and that it is best adapted for what it is now occupied as—an immense cattle range. The greater part of

the prairie is only a few feet above sea-level, and, as on this occasion, large patches often become covered with water. It throws up fine, short, thick, rich grasses, however, and carries a good many cattle. More than 50,000 cattle are grazed here all the year round, but the number of acres they can range over it is impossible to ascertain. Two of the largest cattle-owners in this neighbourhood are Mr Allan and Mr Butler, the former of whom has a fence along the line side for no less than twelve miles. He also conducts a very large "packery" establishment near Galveston, from which he supplies the German and United States armies and several English meat-vendors with "canned" beef. Small cattle, and those not likely to take the market in "sides," are driven to this receptacle of refuse and slaughtered, and their flesh, stripped of bone and gristle, boiled twice by steam, and packed into cans holding two, four, or six pounds each, which are shipped to the centres of consumption. I asked an extensive Texan stock-owner the other day if it was still the practice in Texas to allow the old cows to die away naturally, or if they had yet found any way of utilising these aged animals, and probably his reply may be of some interest to those in the old country who consume canned beef. "Oh, no, sir; we do not allow them all to die off now. When we see a pretty tidy cow getting old—nine, ten, eleven, or twelve years, or perhaps more—we ship her calf and let her take on a bit of beef, and then in the fall we send her to the packeries." And where is the meat sent? "Oh! mostly to England, sir!"

Mr Butler's ranch is under the management of a young,

practical, intelligent Scotchman, extends to over 27,000 acres, all enclosed, and is held in connection with an arable farm of over 900 acres a few miles farther west, where Indian corn and sugar are grown extensively and successfully. A flock of merino sheep are kept here, and for two years Mr Butler has been raising improved cattle at this farm. His system is to procure shorthorn bulls from Kentucky for about £15 a-head, and mate these with the best native cows he can select, the male progeny being retained to improve his general herd. Within the past two or three years a large number of shorthorn bulls have been introduced into Texas, but of these a good many have died, it is supposed from the influence of the climate. Mr Butler, however, finds that calves, if carefully treated, seldom show signs of sickness or die, and therefore he now buys no old bulls.

Not having as yet visited the great centre of stock-raising, which lies west from here, I cannot now speak fully of the general system of stock management, but have already learned enough to enable me to give some idea of how the grazing lands are pastured and possessed. Almost the whole of the State overrun by cattle or sheep, or occupied as arable land, is owned either by private individuals, by railway companies, or by the State on behalf of the "Texas School Fund," the unsettled State lands lying chiefly away west in the frontier. A man desiring to "squat" on school lands can select his spot, erect his hut, and by virtue of a residence of five years he is entitled to a grant of 160 acres on paying some small fees which amount to barely half-a-dollar an acre. Some of the railway companies have

selected their lands, and are offering them at specific rates ; others simply hold certificates for a certain extent of land, and these certificates they now sell at about 50 cents, or 25., for each acre. Having obtained a certificate, a settler can select any spot he chooses in unoccupied land, and there carve out his home. Many of the private landowners, especially in the south-west of the State, hold titles for the lands direct from the Mexican Government, or are what are called "original grantees," while others possess certificates or titles from the Texan Republican Government, which existed before the Union in 1845. Settlers ought to be very careful to see that the titles they receive to their lands are valid, or "real patents," as false titles float about on all hands.

The system under which the grazing lands are held is somewhat peculiar. The law of the State decrees that every piece of land not fenced, though owned by a private individual, a railway company, or the State itself, is common property to all as pasture land. Supposing a man wishes to become an extensive Texan stock-raiser, all he has to do is to select and purchase some unoccupied, convenient spot of 20 or 10 acres, or even less, and there erect a homestead for his "boys" and pens for the cattle at branding seasons, and buy as many cattle as he chooses, brand them with an advertised brand (if not already branded), and send them away through the woods and prairies to gather their food as best they may. Should a man desire the exclusive use of the land he legally owns, he must enclose it with a substantial fencing, otherwise his right to its pasture is only equal to the rights of his neighbours.

CHAPTER VI.

THE STOCK FARMS OF TEXAS.

A RUN INTO THE INTERIOR OF THE STATE.—FORMER DISAPPOINTMENT PARTLY ATONED FOR.—EVERYTHING LUXURIANT.—BEST SEASON IN WHICH TO SEE TEXAS.—THE LOCALITY OF THE LARGE RANCHES.—PRAIRIE GRASS.—IRRIGATION.—THE PURCHASE AND IMPROVEMENT OF RANCHES.—"BROAD-ACRED SQUIRES."—THEIR LANDS AND RANCHES.—THE MONOPOLY OF LONG-HORNED SPANIARDS.—SYSTEM OF CATTLE MANAGEMENT.—HOW DISPUTES ARE SETTLED.—THE BRANDING PROCESS.—"FEAST AND FAMINE" SYSTEM OF FEEDING.—DEATH-RATE AMONG CATTLE IN WINTER.—HOW AN IRISHMAN "MIXED" HIS PORK.—TEXAS V. ABERDEEN BEEF.

A FEW days' run into the interior of Texas has done not a little to atone for the disappointment created by a week's wandering in the eastern districts. During four days I have passed through a large extent of beautiful country, including many extensive ranges of pasture, mostly open, but dotted here and there with clumps of brushy wood; a few patches of rich but ill-cultivated arable land; and, of course, also several stretches seemingly worthless for any purpose whatever; for in a country of such dimensions as Texas there is room for considerable variety, both in soil and climate. The grass is neither rank nor very strong, but close, green, and thriving; whilst the same healthy, promising appearance is displayed by the few patches of

Indian corn, cotton, and oats—scarcely any wheat being grown in the south and south-western portions of the State, to which this chapter particularly refers. "This, however," says a Scotchman who has been resident here for several years, "is the best time for a stranger to see Texas. Now everything is green and healthy-looking; but if you were here in the end of June and July you would see everything scorched and withered up with heat."

Almost every prairie and patch of woodland in the older portions of the State, carrying even moderate pasture, are overrun to a lesser or greater extent by cattle, while recently many thousands have been driven away west and north into the frontiers, to be grazed on newly-settled lands; but still the great centre of stock-raising in Texas—where it is carried on the most extensively, the most exclusively, and probably also the most successfully—lies south-south-east and south-west of San Antonio. This district is very little short of 200 square miles in extent, is hilly and rough, and mainly covered with scrubby wood in the west and north, "rolling" and dotted with bushy mesquit wood in the centre and south-east, and level and bare in the extreme south, where the soil is very light and sandy and the pasture of little value. The soil on the other portions is chiefly calcareous loam, with a strong admixture of sand, lime, and salt, and, on the whole, it is admirably adapted for producing grass. The mesquit and gama grasses—both short, tiny, and bushy—grow exceedingly well here, and are sweet and nutritious, and retain their feeding qualities wonderfully well throughout the winter.

The greater portion of the land is too light and sandy for cultivation, but still many thousands of acres might produce good crops of Indian corn and oats if the land were well cultivated. At present there are only a few small patches of arable land—producing Indian corn and oats—in all this district; and provisions of all kinds, save beef and mutton, have to be imported from elsewhere. The rainfall here is less than in the eastern regions of the State, and, in exceptionally dry summers, drought causes considerable loss. In the counties of Atascosa, M'Mullen, Frio, Uvalde, and Bandera, and elsewhere in the neighbourhood of streams, or creeks, as they are called here, irrigation has been tried recently and has proved highly successful.

A very large extent of this district has already been bought up, much of it from the original grantees from the Mexican Government, whose rights the Texas Government recognised while they drove the main body of the Mexicans from the State. The purchase prices ranged from 25 cents (1s.) to \$1 50 c. (6s.) per acre, and even now hundreds of thousands of acres might be bought here at less than a dollar an acre. For a very long time the whole district formed one common range of pasture, to which every man had equal rights; but within the past two years several farmers, with the view of facilitating the improvement of their stocks, have been fencing great portions of their possessions with what is called the "post and plank" fence. Many of the larger owners are non-resident, the number of squatters are few and growing but slowly,

and hence the population of this district is limited and widespread.

There are a few "broad-acred squires" here. Captain King, Nueces County, possesses 150,000 acres fenced, and about 200,000 unfenced land, and owns between 40,000 and 50,000 cattle and 5000 sheep. His herd of cattle was at one time much larger; but he has reduced the number so as to enable him to proceed quickly with the improvement of his stock, and also to *rest* his pastures within fence. Captain Kennedy, also of Nueces County, owns about 140,000 acres, all within fence, and about 40,000 cattle; while Messrs Coleman, Matthias, & Fulton, of Aransas, have 210,000 acres within fence, and own about 100,000 cattle. This firm, in fact, are the largest stock-owners in Texas, and may well be so. Mrs Rabb, Corpus Christi, has 50,000 acres enclosed, and owns 15,000 cattle, about one-half of her herd having been disposed of in one contract last fall, at 4 dollars, or 16s., a-head. There are many others who count their acres and cattle by thousands; but statistics make a dry sermon, and, moreover, those accustomed to gauge farming from a Scotch or English standpoint would receive an entirely erroneous impression of Texas cattle-farming from a simple statement of the size of its farms and herds. I have heard the Texas "cattle kings and queens," with their hundreds of thousands of acres and immense herds of cattle, talked of with something like terror in rural circles in "puir wee hampirt Scotlan'"; but when one scans an object closely with the naked eye, after viewing it from a

distance through a binocular, he sometimes finds his first vision wonderfully modified! A farm of 350,000 acres and 50,000 cattle! What a wealthy man Captain King must be! Yes, £150,000 is a big sum; but probably few whose acquaintance with the great farms of the Far West has been obtained solely from newspaper accounts would think it possible that anything short of a round million could set up a rival to the well-known "Cattle King" of Texas, or that the total value of cattle exported from the whole of Texas in 1876 fell considerably short of two millions sterling. I happened to meet a young, shrewd Scotchman on a cattle ranch the other day, and having introduced the subject of large Texan farms, he remarked, "I hear of great talk in the old country about our large farms. God bless you, man! I could go over there" (pointing to a broad prairie stretching away westwards from our feet) "to-morrow, and buy tens of thousands of acres, but what better would I be? What could I do with it? Nothing at all."

Monopolies are the order of the day in America, even in the hottest Republican centres; and in the ranches of Texas the long-horned Spaniards have it all their own way. The system of cattle management in Texas is indeed very simple, at anyrate on paper. The animals get no food, summer or winter, but what they gather on the prairies and in the woods; and scarcely any watch is kept over them except in spring and fall, when the increase for the year is branded. All the herds within a radius of hundreds of miles mingle together on the unfenced ranges, and therefore it becomes imperative

on every individual owner to have a distinct brand for himself. These brands have to be registered with the State officials, and are advertised in certain newspapers, and generally consist of one, two, or more letters, often joined in strange fantastical forms. One man may have several brands, and sometimes, instead of selling so many hundreds or thousands, he sells a certain brand—the “strength” of each brand being reckoned, as a rule, from the number of calves branded last season. It is decreed by the State that every unbranded calf over twelve months old that is found wandering without its mother shall become the property of him who may first put his brand upon it; and to avoid losses in this way as far as possible, stock-owners go through the branding process twice every year—in spring and fall. And a difficult process it really is. The herd-boys—men on horseback—go through the ranges and gather the cattle into “pens,” where the calves are caught and branded with a hot iron, and ear-marked, and the male calves (except what are required for bulls) castrated. The cows are frequently so wild that it is found impossible to drive them into a pen, and in that case the herd-boy uses the lasso or lariat, and catches the calves as the dauntless hunters of old caught wild horses—in these very woods, in fact. If the cow happens to be so furious that it would be unsafe for the “boy” to dismount, he hauls the calf up to the saddle and there baptises it into the membership of his master’s flock.

Errors and disputes often arise about the branding seasons, and I read a fair specimen of how these differences are frequently settled in a yesterday’s local newspaper. One stock-

man—Bob—had branded another man's cow into his master's herd (by instructions, he urged, as she had been bought by his master), while John, the representative of her former owner, denied this, and obliterated the new brand. Bob, however, was not to be beat; he watched a good opportunity, and again took possession of the cow. But he was seen by his rival stockman and hunted up, and, of course, it was a meeting of Greeks! "Sixers" were drawn; Bob took shelter behind his faithful steed, but John's pistol must have shot round corners, for he is now before the "authorities" excusing himself for the death of Bob! He will easily succeed in that.

The gathering process entails a great deal of riding, and several of the larger stock-owners require for this purpose many hundreds of horses. A herd-boy often tires out three or four horses in one day, and gallops over the prairies at a wonderful pace. The herd-boys are excellent saddlemen, and an expert will defy the wildest "bucker" that could carry a saddle. Many of the cattle-owners rear thousands of mules and small ponies every year, and sell them in droves as they do cattle. They, too, are fed solely on grass on the pasture ranges, and are often perfectly wild, and have to be caught with the lasso—grand game for the "boys."

As a rule, grass is plentiful in summer, and by the end of autumn cattle are invariably in fair condition; but the waste of winter wears most of the fat away. It is "a feast and a famine" with the Texas cattle, and in a severe winter, such as the last, many thousands die from exposure and want of food. The average loss by death in winter is about 20 per

cent., and last winter—the most severe season experienced in Texas for many years—the loss in some cases was more than 30 per cent. The prairies here and there are strewn with whitened skeletons, and only an acclimatised Texan could contemplate with equanimity the fate of these unfortunate famished animals. Some seasons a man (to speak in American parlance) makes “big money” by gathering these skeletons and shipping them to manure manufactories. At one side-station more than 50 two-bushel bags full of bones were lying ready for transport.

An Irishman, having been asked to explain his reason for *feasting* his pig the one day and *famishing* it the next, replied, “To be sure, yer honor, it’s because I want my pork well mixed.” According to this theory, Texas should have abundance of *well-mixed* beef. But if the Texas system of feeding, whereby the animals are *fat* in the fall and at the *falling over* in the spring, makes well-mixed beef, it does not also make it tender and juicy. Texas beef is, in fact, teasingly tough; and when chewing away at what a clumsy coloured waiter is pleased to call “a choice little bit, sir,” I have occasionally to repress a rising sigh for the juicy “gigots” of Aberdeenshire. What is beef to a Texan is not beef to an Aberdonian ! •

CHAPTER VII.

TEXAS STOCK-FARMING—(CONTINUED).

HOW AND WHEN CATTLE ARE SOLD.—DRIVING CATTLE TO THE NORTHERN STATES.—COST OF THE JOURNEY.—WEIGHT AND COST OF TEXAN STEERS.—AN ATTEMPT TO SHIP LIVE CATTLE FROM TEXAS TO LONDON.—PRICES OF BEEF IN GALVESTON.—CATTLE MANAGEMENT IN TEXAS TWENTY YEARS AGO.—THE HIDE USED AND THE CARCASS THROWN AWAY!—THE SUPPLY OF CATTLE IN AMERICA.—THE IMPROVEMENT OF TEXAN HERDS.—THE EVILS OF THE "MIXING" SYSTEM.—INTRODUCTION OF SHORTHORN BULLS.—PROFITS FROM STOCK-RAISING.—SHEEP-FARMING IN TEXAS.

THERE are no regular stock-markets in Texas; and to dispose of his cattle the owner has seldom to leave his home. The buyers "go the rounds," and contract with the owners for so many cattle of a certain age at a certain price per lb. Cattle are all bought and sold by weight in America, and so acute have both buyers and sellers become at "gauging" animals by the eye, that the assistance of the scales is occasionally dispensed with.

The majority of the Texas cattle are sold in spring and fall, or autumn. Those sold in spring are mostly intended for grazing and feeding in the Central and Northern States. Between 200,000 and 300,000 steers go to Kansas, Missouri, and neighbouring States every spring, and now (May) two-thirds of that number are on their way, while some have

already arrived. Large numbers are conveyed to St Louis by rail, and driven thence to their destinations, and others are trained the whole way; but by far the majority accomplish the entire journey of from six to eight hundred miles on foot. Those travelled in this way leave Texas in March or April, are grazed slowly all the way, and reach their destinations at various times between early summer and autumn. Each drove, which may number two or three thousand, in addition to the drovers, is accompanied by a provision waggon and camping equipments. The cost of driving and training is almost identical, and averages about five dollars (£1) a-head.* Those steers are usually three or four-year-olds, or upwards,—mostly four,—and when they leave their native ranches they weigh from 600 to 900 lbs. gross weight, and cost from 12 to 18 dollars, which, with the cost of transit, brings their cost price in Kansas and the other Northern States up to from 17 to 23 dollars a-head, or £3, 8s. to £4, 12s. At this season of the year even the aged steers are generally very lean, and some of those I saw moving northwards reminded me forcibly of a description applied by an Irishman to his cow, which cow, according to her comical owner, was "hard fat!" A sharp shoulder-top is a characteristic of Spanish cattle, and I have seen some shoulder-tops "drawn up" so finely that a Yankee editor might probably describe them as being admirably adapted for "splitting a hailstone!"

The contingent destined for sale in autumn consists of the beeves—those which may have taken on "a bit of beef" during summer. The majority are despatched either by sea

or rail to the markets in the Eastern States; but, of course, a good many are required for the local packeries and for home consumpt. A few, but only a few, are occasionally shipped direct from Galveston to England. A few years ago a company was formed for the purpose of conveying live beeves from Texas to London (there were no refrigerators then); but of the first cargo—a large one, too—only 15 per cent. reached the British Metropolis alive! The second cargo has not left yet. The Spanish hot-house plants of Texas could not stand the fatigue of a long sea voyage. The prices obtained for beeves range from $1\frac{1}{2}$ d. to 3d. per lb. of live weight, and those who kill daily, or twice or three times a-week, and supply the local markets just now with ordinary grass-fed beef—beef of secondary quality—get about $2\frac{1}{2}$ d. per lb. In the Galveston retail market in the meantime, however, what is called good Texas corn-fed beef cannot be bought at less than 5d. or 6d. per lb. — not much under the Glasgow retail price of American beef. It is highly amusing to observe the smile that steals over a Texan's face when his attention is directed to the anomaly between the prices of American beef in New York and across the Atlantic. He is not surprised at it, for he knows well that the monopolists of America can do wonders, but he evidently enjoys the idea of his *friends* the "Yorkers" having to pay a few extra cents for their beef.

A great many Texas calves, most probably the calves of "pretty tidy" old cows, are shipped in spring and summer to New York for slaughter, and these sell at from two to four dollars. Primitive as is the present system of cattle manage-

ment in Texas, the state of matters some fifteen or twenty years ago was far behind what it is now. Then corn-fed beef was an unknown luxury, and the exporting of beeves, dead or alive, was never thought of. The building near Galveston in which Mr Allan now carries on his packing trade was originally erected as a *hide* establishment. Old cows and other surplus cattle were driven thither and slaughtered, and their hides "fliped" off by machinery moved by horsepower, and their carcasses thrown away as useless.

It has been calculated that every 100 Americans require 80 cattle. For many years almost every State in the Union was self-supporting in this respect; but the tide of emigration has overcome the bestial ranks in several States, and, for supplies, these hungry communities now look to Texas. They have been looking to it for several years; and though in 1870 the ratio there was about 900 cattle to every 100 people, the cattle stock of Texas has been considerably reduced during the past few years. One gentleman engaged in the stock trade in Texas assured me the other day that, on several ranges, there was not more than one cow for ten he had seen, and that the number was gradually getting less and less. Some eight or ten years ago scarcely any cattle were sold out of Texas till they had reached six or eight years, but now steers of these ages can hardly be got.

This reduction in numbers must be looked on with favour, for before the Texas system of cattle management can be relieved of its present primitive, demoralising, and unpractical tone, fifty thousand herds must be fewer and farther apart. The practice of allowing every man's

cattle to run at random in a semi-wild condition, and mingle at will with others on a broad wooded range, must be abandoned; every individual herd must have its own range within fence, so that its owner, if he desires to improve it, may procure suitable sires, and be certain of getting the exclusive use of them, which, of course, under the present system, is an impossibility. In the meantime, it would be useless for one man to pay high prices for improved bulls, while his neighbours, whose cattle mingle with his, use only sires of the native breed. In those days when the tanneries formed almost the only outlet for the surplus cattle of Texas, the stock-owners of the State, of course, had little encouragement to lay out money in improving their cattle, for doubtless the hide of a rough, razor-backed steer would bring as many cents as that of the finest bullock in the whole State. But since the older States have begun to look to Texas for select steers, the Texas stock-owners have felt that some advantage might be derived by breeding a better class of stock. As already mentioned, a considerable extent of fencing has been erected within the past two or three years, and during the same period a good many improved sires—mostly shorthorns—have been introduced. Grave doubts are entertained as to the suitability of the climate of Texas for shorthorns; and already experience has taught that it is unwise to introduce aged bulls of that breed. Few of those that have been tried have survived over twelve months; but several stock-owners have been trying the introduction of bull-calves, and of these about 80 per

cent. have thriven very fairly and done good service. These improved bulls are mated with select native cows, and it is intended to improve the general stock of cattle by the male progeny of these unions. The few crosses I have seen, though young, showed a decided improvement on the native cattle, especially in regard to quality, in which the Spanish cattle are most deficient.

That stock-raising in Texas has been, and is, a profitable line of business there can be no doubt. Almost every one who has entered into it with even a fair amount of care and earnestness, and had any knowledge of the work, has made money; while a great many have raised themselves from the humble position of a herd-boy to the possession of great wealth. A gentleman who had been engaged in the stock-trade for many years in the south of Texas assured me that, though he had seen a few reckless Americans go to the wall at cattle-raising, he had never known a Scotchman or an Irishman to fail; "they all make money." The same gentleman gave it as his opinion that, at the present day, capital invested in cattle-raising in Texas was paying more than 25 per cent. per annum. A writer in a recent issue of a New York newspaper gives the following instance of the profits made in some cases:—"Four years ago, certain friends of mine discussed the pasturage question, and began to buy and fence in cheap lands. They have now 230,000 acres of pasture, are systematic in all their business, and opened a 'stock cattle' account, separate from beef account, debited it with all purchases of stock cattle (all ages), and credited it with all sales from said

stocks at the prices ruling there. The account shows now 410,000 dols. paid out in four years for stock cattle of all ages, and 520,000 dols. sales from said stocks, with 110,000 cattle on hand, worth 6 dols. per head, or 660,000 dols., and the account out of debt, making 770,000 dols. profit in four years, and perhaps did not use over 35,000 dols. cash in these purchases."

There are a great many large flocks of sheep in Texas, but, as a rule, they are of a very inferior description, and their management is even worse than that of cattle. They are mainly inferior Mexicans, merinos, and crosses of a nondescript class. Within the past few years several flocks of very fair merinos and crosses have been introduced, and these are chiefly in possession or under the management of Scotchmen. Occasionally a few wethers are shipped for the mutton market; but, generally speaking, wool forms the entire harvest of the Texas sheep-farmer. The animals are kept solely for the purpose of growing wool, and, in most cases, the old sheep are allowed to die away naturally. Each man's flock is invariably tended separately, and sheep, as a rule, occupy the higher-lying lands. Improvement might be carried out much more speedily among sheep here than among cattle; and, on the whole, the growing of wool in Texas seems a much more civilised line of life than the raising of cattle; and well as cattle-raising pays, it seems that sheep-farming pays almost as well.

CHAPTER VIII.

ARABLE FARMING IN TEXAS.

THE ARABLE LAND OF TEXAS.—THE SOIL.—ITS PROBABLE VALUE IN SCOTLAND.—NO STONES.—NO DRAINING REQUIRED.—A SEEMING PARADISE.—BUT, AFTER ALL, NOT SO DAZZLING BRIGHT.—EMIGRANTS TO TEXAS IN 1876.—THE VALUE OF OLD-CULTIVATED LAND.—CROPS :—COTTON—INDIAN CORN—WHEAT—OATS AND RYE.—BARLEY NOT IN FAVOUR.—WANT OF OUTLET FOR PRODUCE.—LIMITED HOME CONSUMPT.—BAD CULTIVATION.—SIGNS OF IMPROVEMENT.—MODE OF OCCUPATION.—FREE LABOUR NOT YET ADOPTED.—BAD SYSTEM OF TENANCY.—BAD ROADS.—LITTLE FENCING.—SOME HANDSOME DWELLING-HOUSES.—MANY HAMPERED HUTS.—OFFICE HOUSES VERY INSUFFICIENT.—NO GRASSES SOWN.—FEW POTATOES AND TURNIPS.—DAIRY-FARMING.—100 DOLLARS A-WEEK FROM TWENTY-FIVE COWS.—GRASSHOPPERS.—HAIL-STORM.—LABOURERS' WAGES IN TEXAS.

THE main body of the arable land of Texas lies in a stripe in the centre of the State from San Antonio northwards to close on the Indian territory, the patches in the other portions of the State being small and widely separated. This belt is far from being closely cultivated—in fact, not more than one-twentieth part of it is under cultivation—but it is the district best suited for arable farming, and contains the largest and most systematically worked farms Texas can boast of. It is about 200 miles in length, and varies in width from 100 to 150 miles. The surface is undulating and hilly on the west and north; and while the greater por-

tion is open prairie, there are a large number of patches carrying very fair timber. The river-courses, too, are fringed on both sides with flourishing trees and bushes. The district is well watered, and the soil on the whole is very fine—chiefly a rich black loam, containing a large percentage of vegetable mould, and a considerable admixture of exceedingly waxy clay, which renders the land very unpleasant to work amongst after a shower. It sticks to one's feet with all the tenacity of a Texan herd-boy to his saddle; there is no throwing it off. White limestone predominates as the underlying rock, and the soil, which varies from one to five feet in depth, is richly impregnated with lime; and even in its natural state it raises rank, sweet grasses. It is extremely easy to bring it into regular cultivation, and in Scotland it would be considered worth from £2 to £3 per acre of annual rent. There are no stones to interfere with the plough, and, of course, draining and levelling are operations never heard of in the reclaiming of land in this country.

There are still many hundreds of thousands of acres of this description for sale at from one to five and ten dollars an acre, according to situation and quality; and certainly, if one were to judge by a casual glance at this season of the year, when the prairie grass is coming up fresh and green, and the trees and bushes are newly unfolding their gorgeous garbs of summer, he would have little hesitation in declaring that this is the spot to which all emigrants should come. But "all is not gold that glitters;" and a sly glance into the money-bags of some of those who have laboured in this seeming paradise for many years throws a gloomy shade

over what was at first so very bright. The past few years have brought a great many agriculturists into Texas from all parts of the country. Between October of 1876 and the 1st of April last over 70,000 entered Texas from the Northern States with "land buyers'" tickets; and it is asserted that the majority of these were pleased and remained. These emigrants, of course, have increased the arable area considerably, but still the greater portion of the arable land of Texas, especially in close proximity to towns and villages, has been under cultivation for ten, fifteen, or twenty years. These old lands are the most valuable, and sell at from 40 to 60 dollars per acre.

Cotton and Indian corn are the principal crops grown. Cotton entails an enormous amount of manual labour; and, now that slavery is no more, its cultivation leaves but a small margin of profit to the grower. The yield ranges from three-fourths to one bale per acre, and the local selling price is usually about nine cents per pound. It is likely that the cultivation of cotton will decline with the growth and spread of improved farming, and become confined chiefly to the southern districts of the State, where the smaller varieties of grain do not thrive well.

Indian corn has many qualities to make it exceptionally suitable for cultivation in America. It is a strong, vigorous plant, will grow with moderate cultivation, requires rich, deep soil, and is easily handled. It is undoubtedly the staple crop of America. It is planted by some in drills, and by others on the level land, and the seeds are deposited so that there may be from three to four feet between the

stalks each way. Some sow it by machines drawn by horses; some plant it very much in the same way as the ancient farmers of Scotland "dumpled" turnips; while others drop the seed by the hand. From three to five seeds are deposited in each hole; and if more than one grows up, the weakest are pulled out, and only the strongest one left. It is sown from March to May, and reaped in the fall. In Texas the yield occasionally reaches 45 and 50 bushels in well-cultivated fields in good seasons; but the average seldom exceeds 20 or 22 bushels per acre.

Wheat is mostly sown in autumn, immediately after the reaping of the Indian corn, and is usually ready for harvesting in July. The average yield is only about 18 or 20 bushels per acre, and, on the whole, the Texas farmers' profits from wheat are not large. The total value is seldom more than £3 or £4 per acre. Oats and rye are sown in April or May, and reaped along with wheat. They yield fairly, and the latter usually finds a pretty ready sale. Barley cultivation is not much in favour in Texas.

The great drawback to farming in Texas, as in all the new States of America, is the want of market or proper outlet for the produce of the soil. The home consumpt is limited; and then Texas is so far removed from the large centres of population that its farmers are severely handicapped in the race with the farmers of the older States, and have their returns continually crushed down to a minimum—occasionally, in fact, squeezed to the wrong side. A long time must pass before this obstacle can be overcome.

If cultivation in the States I passed through on my way

south was bad, it is ten times worse here, if, indeed, that were possible. What a Texas farmer calls ploughing is simply scratching the surface to the depth of two or three inches; and the harrowing, grubbing, cross-ploughing, clod-breaking, rolling, and weed-gathering of Scotland are to him utterly unknown. One could scarcely help feeling grieved at seeing such fine land so shamefully ill-treated. The average yield of grain is miserably small considering the richness of the soil; but, indeed, no one need wonder that wheat sometimes does not exceed fifteen bushels per acre. This fine variety of grain likes well-cultivated, well-made land, and will grow well only where it receives such treatment, however fine the soil may be. It is to be hoped that the Texas farmers will see their error and spend some little effort to avail themselves of the rich advantages bestowed on them by nature. In fact, if one might judge from the thousands of new and improved farm-implements that have come into the State this season, they have already resolved to behave better towards their land.

All the more recent settlers and smaller owners farm their own land, and cultivate it themselves if it is not too large, but the majority of those who held their lands in the days of slavery have never yet taken to the system of free labour. These men, of course, have never understood the philosophy that requires a man to win his bread by the sweat of his brow; and instead of labouring on their own land, they let it to tenants who pay rent in the shape of about one-third of the produce. A large number of these tenants are negroes, and most people

will be ready to believe that coloured men are not the best of farmers. The system is far from a healthy one as now conducted, and will die out as soon as a sufficient amount of good labour comes into the State. Some of these landlords say that farming here (as carried on by them) pays better than farming in any other part of the world. If so, they must pocket all the profits themselves, for those who rent and work their land are invariably in misery. In fact, a great many of these tenants are men who will work only when they must in order to keep in life.

Roads are very bad, and of fencing there is very little. A few of the larger land-owners and farmers have handsome dwelling-houses—almost all wood; but office houses are very insufficient, and the residences of the smaller settlers and labourers are mostly humble hampered log-huts. No grasses are sown, save a little German millet, and Hungarian grass occasionally. Turnips and potatoes are grown only for table use. The latter grow only fairly, and cannot be stored for any length of time. Dairy-farming is carried on to a slight extent around the towns and villages, and those who engage in this industry make large profits. One farmer in the neighbourhood of Dallas nets from 75 to 100 dollars a-week by the butter and milk of twenty-five cows—shorthorn crosses.

Those *popular friends* of American farmers—the grass-hoppers—reached Texas in their sweep across the Western States last autumn, and now the land in some parts is actually brown with them. Several fields of wheat, oats, and rye have been eaten into the ground; and though

hopes are entertained that the hot weather may drive them away soon, the ravages of these destructive creatures have not yet reached their height. They are eating potatoes also, and to save their small patches of this crop farmers send labourers to sweep off the "hoppers" with brushes. The untouched fields of wheat and oats have a most encouraging appearance, the grain being fully eighteen inches long and well into the ear. Occasionally a *safe* and a *destroyed* field lie alongside, and the sight is truly sad—the one fresh and luxuriant, the other eaten close to the ground! I have never seen the like except at Monymusk, Aberdeenshire, when Sir Archibald Grant's *four-footed* grasshoppers are about half over a fine field of oats!

The recent severe hail-storm also destroyed several fields of oats and wheat so terribly that cattle and horses have been turned over them to pick up the remnant of the plants. It is not yet too late to plant Indian corn, and many farmers intend ploughing the fields upon which the small grain has been damaged and planting them with corn.

As a rule, farm-labourers in Texas get from 10 to 12 dollars a-month (an exceptionally trustworthy man—a scarce commodity here—getting a little more) and their board. This is equal to from £24 to £28, 16s. a-year and board—or between £5 and £6 less than the average rate of wages in the north-eastern counties of Scotland.

CHAPTER IX.

ARKANSAS AND MISSOURI.

ARKANSAS:—EXTENT AND POPULATION—MORE NOTED FOR TIMBER THAN AGRICULTURE—ARABLE AREA—CROPS: YIELD AND VALUE—NUMBER AND VALUE OF LIVE STOCK.—MISSOURI:—SURFACE AND SOIL—ARABLE AREA—CROPS: THEIR YIELD AND VALUE—THE CLIMATE UNFAVOURABLE FOR WHEAT—LOSSES BY "RUST" AND DISCOLOURING—PRAIRIE AND SOWN HAY—TURNIPS ONCE TRIED—NUMBER AND VALUE OF LIVE STOCK—IMPROVED CATTLE—TEXAS CATTLE—HOW KEPT HERE—PROFITS FROM GRAIN FED TO STOCK—HOG-RAISING AND FEEDING—THE CULTIVATION OF FRUIT—GRASS-HOPPERS—LABOURERS' WAGES.

ARKANSAS extends to 33,406,720 acres, and in 1870 it had a population of 483,157. Although there are now several railways running through the State in various directions, it was first opened up by railway communication only six years ago, and is more noted for its timber than its agriculture. All the common varieties of wood grow abundantly; but oak, pine, and hickory predominate. More than one-half of the whole area of the State is under wood, and the quality of the timber in most parts is excellent. To clear these lands for the plough will require the work of many years.

The total area under all kinds of crops in 1875 was little over 900,000 acres, Indian corn covering two-thirds of that, and wheat one-sixth. Indian corn averaged in that year

about thirty bushels per acre ; but wheat yielded very little over twelve bushels, which brought the gross value of the wheat crop to only about £2, 10s. per acre. Oats, of which there were about 33,000 acres, averaged twenty-nine bushels, and were worth £3 per acre ; rye yielded thirteen bushels, worth about one dollar each, or, in all, about £2, 12s. No barley was grown. A great extent of the arable land is scattered in small patches chiefly along the banks of rivers, where the soil is very rich. There is abundance of very fine soil in several parts of the State ; but, speaking generally, the clays of Arkansas are rather stiff, and inclined to bake or become cake-like.

The milch and breeding cows of Arkansas, on the 1st of January 1876, numbered 160,000, and were valued at sixteen dollars (£3, 4s.) a-head, or about half-a-dollar above the Texas cows. Steers and young cattle numbered 261,300, worth ten dollars (£2) a-head, or one dollar more than the Texas average. The Arkansas cattle seem to be a mixed class of crosses from various breeds, and, on the whole, they are inferior and badly kept. Many of them were very thin. The State carries about 200,000 sheep, worth two dollars (8s.) a-head, and 900,000 hogs, valued at a little over three dollars, or 12s. a-head.

Missouri has an area of 41,824,000 acres, and has been the scene of active operations for many years. Situated as it is at the confluence of two of the mightiest rivers in the world—the Mississippi and the Missouri—it is only natural to expect that its rich agricultural and mineral resources would have been early discovered and eagerly sought after

by enterprising explorers. The growth of this State since the advent of the present century has been wonderful. In 1804 the population was little over 10,000; in 1870 it was 1,721,254.

The surface of Missouri is generally rough and uneven, and a large extent—where iron, lead, and copper abound—is unsuitable for cultivation. There is, however, an immense area of very rich land, lying chiefly in those counties which border the Missouri River. The soil is mostly black loam and vegetable mould, very deep in some parts, and remarkably easily cultivated. Magnesian limestone forms the underlying rock in several districts, and there the soil is considerably improved, especially for hay and pasture, by being richly impregnated with lime.

The total area under cultivation in 1875 was about five and a-half million acres, more than one-half of which was under Indian corn, which yielded about 36 bushels to the acre. This is regarded as a very fair yield; but then the average market price seldom exceeds 28 cents per bushel, which would have made the corn crop of 1875 worth only about £2 per acre. The climate of Missouri does not favour the cultivation of wheat. Heavy rains frequently fall in July, just when wheat is being harvested, doing considerable damage by "rusting" and discolouring; and, besides, the intensely severe winters which are experienced here every other year are very hard on the young wheat plants. More than two-thirds of the crop has been lost several years in this way; and, on an average of five or ten years, wheat leaves but a very small margin for its cultivation. In 1875

its area in Missouri extended to 1,240,000 acres, and the average yield was only nine bushels per acre, which, at the average market price for the year, made the gross acreage value of the wheat crop only about £1, 15s. Occasionally wheat brings from a dollar and a quarter to a dollar and a half per bushel (or from 5s. to 6s.); but an experienced agriculturist in the State told me that if any one were to offer him a dollar per bushel for all the wheat he might grow in ten years he would at once close with him. Rye does not yield very largely, but usually commands a good sale; while oats average from thirty to thirty-six bushels, and bring from 25 cents to 30 cents, or from about £1, 10s. to £2, 4s. per acre. Between twenty and thirty thousand acres are generally sown with barley, and the yield ranges from eighteen to twenty-four bushels. The market price for barley the last two years was pretty close on that for wheat.

A large quantity of prairie hay is cut in several counties in Missouri, and a little clover is cultivated, though in a manner very different from the system prevailing in the old country. The clover is sown along with the smaller varieties of grain, as in Scotland; but here the early harvest allows an excellent crop of hay to grow up the same season, and be reaped after the grain has been gathered in. After this, again, a wonderfully rich second growth comes up, and this is either pastured or ploughed down in the fall, and the land sown with wheat, and one sowing "stands good" for another crop of hay and cover of pasture the following season—two crops of hay and two covers of aftermath from one sowing.

A few pasture the clover for a second year; but over the State generally the cultivation of grass is practised but very slightly.

Turnips are cultivated only in gardens. A few years ago, when the wheat plants were almost entirely destroyed by frost, a considerable breadth was sown with turnips. They grew splendidly, and it was thought the circumstance might lead to the extensive cultivation of roots in the State. But no; the Missouri farmers have almost as little favour for turnips as ever. Some may sow a dozen, or half-a-dozen, of drills, and it rarely happens that even these small patches are wholly used.

On the 1st January 1876 Missouri had 438,200 milch cows, of an average value of £4, 4s.; and 813,800 steers and young cattle, worth about £3, 8s. each. Sheep numbered 1,284,200, worth 7s. a-head; and hogs, 1,874,300, worth £1, 3s. each. Within the past few years a large number of improved cattle, with a considerable percentage of shorthorn blood, have been introduced into Missouri from the older States, and now the State can boast of more than half-a-score of shorthorn herds. Several of these herds have no claim to a position in the first rank; but still there are a good many superior "thoroughbreds" (the American term for a shorthorn) in the State. What the Missouri farmers call their native cattle are crosses claiming descent from probably every one of the many different breeds introduced in early days into the New England States. They are of fair size, but are far from what might be desired in regard to quality and shape and fineness of bone. Missouri, however, does

not rear nearly all the cattle it requires to consume its produce. It looks to Texas, and, of course, does not look in vain; for probably one-fourth of the three or four thousand Texas cattle now moving northwards from their native ranges will find their way into this State before the close of autumn. Here these cattle are fed along with the older native cattle for five months on corn and hay, and sent alive to the Chicago markets in spring, or whenever they may be considered ready for the butcher.

When Texas cattle enter Missouri, they cost from 15 to 23 dollars (£3 to £4, 12s.) a-head; and the finish off they receive here adds from 20 to 22 dollars more (£4 to £4, 8s.) — that is, if each animal is allowed (what it usually requires) during these five months about seventy-five bushels of Indian corn, which, in the market, would bring from 28 to 30 cents a bushel. Native steers of three or four years, when fat, weigh, on an average, from 1200 to 1400 lb. alive, or from 650 to 800 lb. in the carcase. The Texans, however, fall considerably short of that—probably do not average above 550 to 600 lbs. dead weight.

Farmers find it much more profitable to consume their Indian corn by cattle than to drive it to the market and sell it at an average of barely 30 cents per bushel. In fact, several Missouri farmers assured me that they could scarcely make ends meet by selling Indian corn at 28 to 30 cents per bushel, but that by feeding cattle with it they could generally come very near to 45 or 50 cents per bushel. And to meet the cost of attending to the cattle they have the

profit they can make from hogs, which is indeed very considerable. Amongst every 100 or 150 cattle, 70 or 100 hogs may be kept and fed entirely from what they gather for themselves; so that whatever can be got for these hogs is clear gain—less, of course, their cost when they are housed with the cattle.

Probably no branch of farming in America pays better than the rearing of hogs. Crosses from Berkshires predominate, and the general stock of hogs is decidedly superior to that of either cattle or sheep. Porkers also seem to be better attended to than the other animals of the farm—or probably it is that they attend better to themselves.

The cultivation of fruit is largely pursued in several parts of Missouri—the largest return being obtained for apples. The value of the apple crop in Lafayette County alone usually amounts to about £15,000. The apples grown are of the finest quality, and sell at about 50 cents (2s.) per bushel in the orchard. Peaches are also grown very extensively. Almost every farm has its neat, well-kept orchard, for in comparison with the farms the orchards are indeed tastefully kept.

Missouri came in for its fair share of grasshopper eggs last autumn, but the cold, wet, backward spring has delayed hatching so much, and destroyed so many eggs, that, as yet, very little damage has been done in this State. Winter wheat looks very well; but Indian corn is not far advanced. In fact, a large extent of Indian corn land is only newly planted, while a good many fields have still to receive the

seed—farmers being anxious to allow the locust scourge to pass before planting their corn.

Farm-labourers' wages in Missouri range from twelve to eighteen dollars a-month (£2, 8s. to £3, 12s.), and board.

CHAPTER X.

KANSAS.

THE POSITION AND EXTENT OF KANSAS.—ITS GOOD NAME.—SOIL.—CLIMATE.—RAINFALL.—SCARCITY OF WOOD.—THE LOVELINESS OF THE PRAIRIES.—GENERAL ATTRACTIONS AT A CASUAL GLANCE.—IMPRESSIONS MODIFIED AND CURIOSITY AROUSED BY MINUTE INQUIRY.—CROPS : YIELD AND VALUE.—THE DISTRICT INTERSECTED BY THE CENTRAL BRANCH OF THE UNION PACIFIC RAILWAY.—HALF-CULTIVATED HOMESTEADS DESERTED : HOW THIS HAPPENS.—THE DIFFICULTIES EARLY SETTLERS HAVE TO CONTEND WITH.—SUCCESS OF SETTLERS WITH SUFFICIENT CAPITAL.—FAILURE OF SETTLERS WITH LIMITED MEANS.—THE NECESSARY CAPITAL FOR A HOME-STEAD.—MIXED FARMING THE MOST PROFITABLE.—CATTLE IN NORTH-EAST KANSAS.—TEXAS CATTLE IN BAD FAVOUR.—THE VALLEYS OF THE REPUBLICAN AND SMOKYHILL RIVERS.—MR HENRY'S WHEAT-FIELDS.—GRASSHOPPERS.

PROBABLY not one of the other "young" States in the Union has a reputation in Great Britain equal to that of Kansas. There it has been known as an immense stretch of land (it extends to 50,187,520 acres), situated so as to escape the pestilential climate of the South and the rigour of the North ; in fact, as forming exactly the "happy medium" of the Far West. Those interested in the development of its resources, which are mainly agricultural, have been careful to display its attractions in Britain in brilliant colours, and as a natural consequence the State has received a large number of emigrants from the old country. In America, too, it still

retains a good name, notwithstanding that during the past years it has met with several reverses of fortune by grasshoppers, drought, and otherwise. Some claim for Kansas that it contains a larger extent of rich workable land and a more equable climate than any other State in the Union; and that, on the whole, it surpasses all others in general fitness for farming. Few deny that its soil is excellent; and, judging from what I have already seen of the State (a large stretch of the north-east), I am inclined to think that the published descriptions of its soil, high-sounding though they be, are coloured but very slightly, if, indeed, coloured at all. All admit that its climate is mild and temperate, and exceptionally healthy for man and beast; but it is undoubtedly a fact that, though extended cultivation and planting trees have done a good deal to mitigate the drawback, farmers in Kansas run considerable risk of sustaining heavy losses by drought. Not a drop of rain falls some summers for more than two months; and again the autumn and early winter are occasionally so very dry that wheat never gets a proper start, and yields barely half an average crop. The average rainfall in 1876, at nine different stations along the centre of the State, was a little over 26 inches, the fall at the most easterly station, Manhattan, being 42.42, and at the most westerly, Fort Wallace, 16.01 inches. According to a calculation by the Kansas Agricultural Department, the average rainfall in Kansas in the months of May, June, July, and August, for a period of ten years, was 19.19 inches, or close on 2 inches more than the average for these months during the same period in twenty other States in the Union. This

calculation is doubtlessly correct; but then it must be explained that the distribution of the rainfall in Kansas is very unequal. For a week, or even longer, in May or June rain frequently falls in torrents (as it has done the past seven days), and then probably not a drop may descend for two consecutive months. With such an extent of prairie, and so little wood and cultivated land (only 11 per cent. of the area of the State is under wood), evaporation is very speedy, and in a marvellously short space of time after a shower the soil becomes dry and parched. The spring and summer rainfall of Kansas generally exceeds that of the great wheat-growing districts of Southern Russia, and about equals that of England; but in these parts the distribution is more even than in the rolling prairies of the Far West.

As to the other important advantage claimed for Kansas—general fitness for farming—there are, of course, opinions many and various. Just now, when grass crops are so green and thriving after the recent heavy rains, a casual glance over the State impresses him who looks with an idea that Kansas is indeed an agricultural paradise; he is charmed with the solemn loveliness of the prairies, delighted with the wonderful richness of the soil, and surprised at its evenness and the ease with which it can be brought under the subjection of the plough. Richer soil, better-lying land, and seemingly also a better climate, no agriculturist could desire; but when he sees numbers of half-improved homesteads deserted, and hears of whole fields of grain being destroyed by grasshoppers in a few hours, of all but a complete loss of the wheat crop through drought, of Indian corn being used as

fuel as the most profitable manner of disposing of it, and of sundry other drawbacks, his first impressions become modified and his curiosity aroused.

Here, as almost everywhere else in America, Indian corn is the staple crop. Of the three million odd acres under cultivation in 1875, close on two-thirds were devoted to this crop; wheat occupying 750,000 acres; rye, 79,000; oats, 288,000; barley, 36,000; buckwheat, 13,000; and potatoes, 46,000. The year 1875 was favourable for Indian corn, and that year it yielded an average of 40 bushels per acre (the highest yield for that year in any State in the Union, Nebraska being exactly the same), and in the market it was worth, on the average for the season, 23 cents per bushel, or about £1 17s. per acre. Wheat yielded 17 bushels, worth close on £3 (87 cents per bushel); rye, 17 bushels, worth about £1, 14s.; oats, 33 bushels, worth £1, 12s.; barley, 21 bushels, worth £2, 8s.; buckwheat, 18 bushels, worth £2, 12s. Potatoes yielded 112 bushels per acre, and were worth about 27 cents (1s. 1d.) per bushel. Over 700,000 acres of prairie hay is cut in Kansas every year, and sells at from 3 to 5 dollars per ton (12s. to £1), which is an average yield for an acre.

The part of Kansas I visited first was that intersected by the Central Branch Union Pacific Railroad, which runs from Atchison to Washington, a distance of over 120 miles. This district is well watered; and though the summits of the "bluffs" or heights are bare and water-worn, it contains a great stretch of very fine soil—sandy loam, impregnated with lime, and ranging from one to three feet deep. Settle-

ments are pretty numerous along the line, but still the main portion of the land is held by the Railway Company and land speculators, and is for sale at from one to five dollars (4s. to £1) per acre. The greater part of that held by speculators is land purchased from the Kansas Agricultural College at Manhattan (which received a large grant of land from the Government for support), and half-cultivated homesteads that have been deserted.

Half-cultivated homesteads deserted! How does this happen? In a manner easily explained. A man, with probably a wife and a young family, whose possessions and prospects at home may not be equal to the prospective demands of his family, is urged abroad to seek for a competence. He comes here and places himself on a Government section, or purchases a small piece of land. He has probably just capital enough to secure the land, buy a light team of horses and the few necessary implements, build a shanty, to find seed for a few acres, and maintain himself and his family till the first crop is reaped. The grasshopper, plague, or a drought visits his locality, destroys two-thirds or the whole of his crop, and leaves him destitute, or almost so. By mortgaging his meagre possession, or by a loan from home, he may be able to seed a few more acres for one more trial. Similar misfortune falls upon this crop; and at last, in despair, he sells his partially improved holding for a mere trifle, and returns home or moves elsewhere. I passed several homesteads having a history of this kind, and visited settlers alongside, who, as a rule, were young or middle-aged men with young families, and of very

limited means. Most of them had been here for two, three, or four years, had had heavy losses by grasshoppers and drought, and (several of them, at least) were now in such reduced circumstances that like misfortune for another year or two would swallow their last cent. One English settler said he had laboured here for three years, and lost so much of the little he had to begin with, that another year such as those he had experienced would drive him off in despair and quite penniless. Another settler, from the New England States, declared that no class of men with small means were making money, or even a comfortable living, at farming in this locality save Swedes, and the secret of their success he explained thus: "They take the good of everything. What the cattle won't eat they give to the hogs, and what the hogs won't eat they eat themselves. They are the dirtiest fellows on the earth!" A good many Germans emigrated here several years ago, and by clubbing together, and by assisting and encouraging each other, they have made tolerably comfortable homes, and are likely to make a little money forthwith.

While partial or complete failure has been the fate of the majority of those who have attempted farming here with small means—probably not more than £100 or £150—nine out of every ten of those who commenced three or four or more years ago with a sufficiency of money to meet emergencies at the outset are already receiving fair return for their capital, and have every prospect of realising moderate fortunes. It might be asked what would be a

sufficiency of capital to purchase and farm successfully, say, 100 acres of land in Kansas? Less than £500 would be too little. Good homesteads, unless at a great distance from railways, are mostly all taken up, and therefore land must be bought, and would cost at least £75. A team of horses and harness would cost about £50, the necessary implements £100, stable and barn £15, and dwelling-house and furniture (of even moderate pretensions) £100. No man could consider himself safe unless, after defraying all these preliminary outlays and laying down the first crop, he had at least one-third of his capital untouched.

The large majority of those I have met in Kansas agreed in the opinion that he who combines arable and stock farming—consumes his corn by his cattle—is most likely to farm with profit. This happy union, however, has not as yet been adopted to any great extent here, though several large farmers, stimulated no doubt by the new outlet opened up for American beef, have resolved to give it a trial. Only a small number of cattle are bred in this district, and these are mostly of inferior quality—a mixture of many breeds. A few shorthorn bulls are now being introduced, and between these and the best of the native cows a fair class of cattle should be raised. A good many second-rate Texas cows and steers—verily a second-rate class of animals—find their way here, and the best of these and of the native steers are fed for a short time on Indian corn, and conveyed alive to Chicago, where the better-fed beasts are killed, and the leaner sold to farmers in older States for further feeding. The smaller animals are retained for the local markets.

The choicest of the beeves sent to Chicago weigh from 1200 to 1500 lbs. live weight, and are sold in Kansas at from 4 to 5 cents per lb., to which the cost of conveyance to Chicago adds nearly one more cent per lb. Texas cattle do not find much favour with some farmers here. I asked an intelligent young man, who has been farming in Marshall County for seven years, if he fed any Texas cattle, and got this reply, "'Em darned creatures! Why, I wouldn't have a herd of Texas cattle though you gave me them for nothing. I had 400 head of them one year, and they nearly all died. It's too cold for 'em beasts here."

The valleys of the Kansas, Republican, and Smokyhill rivers were next visited, and here the soil is indeed very rich—richer and deeper than any I have as yet seen in this country, save in one or two parts of Texas, and on the banks of the Missouri river, in the State of that name. This part of Kansas is intersected by the Kansas Pacific Railway, and from Kansas city to Ellis county it is pretty well settled. The tract of land lying between Topeka and Ellsworth is considered about the best wheat district in the State; and though the farmers here had crosses to begin with (and have a few still), they are now, as a rule, realising fair returns. A few lucky, persevering men are making immense fortunes. The largest wheat farmer in Kansas, and probably also the most successful, is Mr T. C. Henry, Dickinson county, near Abilene. In 1875 Mr Henry's area under wheat was 1200 acres; the average yield was 22 $\frac{1}{3}$ bushels per acre, and the selling price one dollar and

five cents per bushel; and after deducting all expenses, he calculated that the crop left him a clear profit of \$18,974.00, or £3794, 16s. Mr Henry is not a practical farmer, but has abundance of capital and perseverance, and was not daunted by early reverses. He executes all his farm work by contract, and it is worthy of mention that seven hundred acres of his wheat-field in 1875 were ploughed out of prairie in the fall of 1874, and, after being well cultivated, was sown with wheat in winter.

Kansas was all life last fall with grasshoppers, and great fears were entertained of another calamity this season. The soil was full of eggs, but the weather this spring has been so exceedingly wet and unseasonable that only a small percentage has hatched. Very little damage has as yet been done, but considerable anxiety has been created by a rumour that great "clouds" of the 'hoppers are on the wing from Texas northwards. Texas, it seems, was becoming too hot for them.

CHAPTER XI.

KANSAS—(CONTINUED).

NUMBER AND VALUE OF LIVE STOCK IN KANSAS.—TEXAS CATTLE IN KANSAS.—THE CHARACTERISTICS OF KANSAS CATTLE.—CARELESSNESS IN BREEDING.—DEATH-RATE AMONG CATTLE.—THE SUPPLY OF PASTURE.—INTRODUCTION OF SHORTHORNS.—MR CRANE'S RANCH AT DURHAM PARK.—MR GEORGE GRANT'S VICTORIA COLONY.—ITS FORTUNES AND MISFORTUNES.—PRESENT PROSPECTS.—VALUE OF ITS LAND.—MR GRANT'S HERD OF CATTLE.—HOW BRED AND MANAGED.—POLLED CATTLE ON THE PRAIRIES.—MR GRANT'S FLOCK OF SHEEP.—THE HON. MR MAXWELL'S LAUDABLE ENTERPRISE.

KANSAS has never been noted for its stock-raising, though it has worked up a little in this respect within the past three or four years. Considering the acreage of the State, its herds of cattle are neither numerous nor large. At the 1st of January 1876 its milch cows numbered 235,700, and were valued on the average at £4, 15s. Of oxen and other cattle there were 486,200, the average value of these being about £3, 15s. Sheep numbered 123,900, worth 11s.; and hogs 246,500, worth £1, 16s. These average values of cattle are slightly short of the standard of American cattle generally—about 25 per cent. in the case of cows, and 5 per cent. of steers and young cattle. Nebraska, California, Nevada, and the Territories (including Colorado) surpass

Kansas in the average value of their cattle; while Kansas exceeds Texas, Arkansas, and Oregon. In regard to the value of sheep and hogs, this State stands about the average of the whole Union. As already mentioned, a very large number of Texas cattle—probably more than 250,000—graze in Kansas for a short time every summer on their way northwards, and these are not included in the Government returns. From this time all on through the summer these Texas cattle arrive in Kansas, and pasture on its boundless prairies till the fall, when they leave for Chicago and other market centres in the North. The open prairies are free to all, and therefore the only outlay for these herds in Kansas is the cost of attendance.

The cattle of Kansas are of various breeds. The cow stock consist mainly of Cherokees, Missouri shorthorn crosses, commonly called grades, and slightly-improved Texans. They are of fair size, but on the average (there are a few creditable herds) they are lacking in quality and shape. They are too leggy, too sharp on the back, too flat on the rib, and show too much "timmer" and "daylight," as a broad Scot would say. Better quality and finer bones are the most urgent desiderata. Selection has been observed but very slightly, if indeed observed at all, in the cow department; and, until recently, almost equal indifference seems to have prevailed in the procuring of bulls. The lively, healthy appearance of the many thousands of cattle I have seen in the State amply testifies to the salubrity and healthiness of the climate; and, considering that there is almost as little hand-feeding here as in Texas,

the animals were really wonderfully full of flesh—quite as full as an average Scotch breeding herd at this season of the year. Last winter was exceptionally severe in Kansas as elsewhere, and in some cases the loss by death was as high as 15 per cent., though the average for the whole State was probably not much over 5 per cent. I learn that several herds were very low in condition at the close of winter; but since then they have improved very satisfactorily. The buffalo or gramma grass predominates in Kansas, and feeds well both as grass and hay. The pasture on the prairies is very rich just now, having been greatly improved by the heavy rains of the past ten days, which, at the same time, have done considerable damage to grain-fields on river and creek brinks, as also to railway tracks.

During the past three or four years shorthorn bulls have been imported pretty largely, and it seems very probable that before the lapse of an equal period of time few others will be in use. The majority of these bulls have hitherto come from Illinois, Ohio, Indiana, and Kentucky; but by-and-by Kansas seems likely to become almost self-supporting in this respect. Mr Albert Crane's shorthorn herd at Durham Park, Marion County, Kansas, is one of the largest and also one of the best in America; and several others throughout the State have commenced on a smaller scale to rear the fashionable shorthorns.

Durham Park lies in the eastern division of the State, just south of the Central line, and all around for many miles is beautiful open, rolling prairie. It extends to 10,000 acres, was purchased four years ago by Mr Albert Crane, of

Chicago—a wealthy gentleman of English descent, who has for long been engaged in real estate speculation. It was then all open prairie, but Mr Crane has enclosed and subdivided the whole, erecting in all 43 miles of “post and plank” fence, at a cost of £100 per mile. About 3000 acres have been brought under cultivation, and more than average crops of Indian corn, rye, and oats are grown. The soil is fertile sandy loam, and is very easily cultivated. In addition to about 200 shorthorns and a small number of graded cows (fuller reference to the shorthorn herd will be given afterwards), Mr Crane has about 4000 improved Texas cows and steers, which run through the parks, and which will be fed off on grass and hay, and probably also a little corn. Last winter 100 cows were fed and sent to Kansas city, where they sold at close on 6 cents per pound. With good feeding the steers now grazing at Durham Park should make good beef. Mr Crane also owns a lot of very fine Berkshire and Poland-China hogs, and realises large prices both for breeding and butcher animals. A talented Scotchman, Mr William Watson, late of Kellior, Forfarshire, is manager at Durham Park, and that fact alone is sufficient testimony of how affairs are conducted.

My next stoppage was at Victoria, Ellis County, a Scotch and English colony, which was organised about four years ago by Mr George Grant, late of Grant & Gask, London, and a native of the North of Scotland. Mr Grant acquired his property, extending to about 100,000 acres, from the Kansas Pacific Railway Company. It lies between the railway track and the Smokyhill River, has rich loamy soil, is

well watered, and is provided with an abundance of excellent building-stone—a fine variety of sandstone. The prairies around are treeless, except along the creeks, and rolling and covered with rich pasture, mostly buffalo grass. Mr Grant arrived at Victoria in May 1873, with about thirty of his country people, and made a vigorous commencement. Here, as all through the State within the railway limit of twenty miles, every alternative section, or 640 acres, was Government land, and most of the emigrants took up homesteads or pre-empted a quarter section, while some purchased land from Mr Grant—the Hon. Walter Maxwell, son of the late Lord Herries, Yorkshire, being one of the first settlers. The history of this young colony confirms in every respect what I learned of early settlements in other parts of the Far West, and what was said in the last chapter concerning the success and failure of emigrants with capital and without. Mr Grant and his little band of agriculturists found Victoria as nature and the buffalo had left it; they had no precedent to guide their operations, no home comforts such as they had been accustomed to in their native land; drought and grasshoppers devoured their first two crops; and wolves and stormy weather played havoc with their stock. Those who had little lost all, or nearly so, and a few left in despair; those having longer purses, or wealthy friends, and extra courage, retained their hold, and scattered seed for one more chance. Fickle Dame Fortune could not always frown on such a beautiful country. Victoria has been bright with her smiles for two years; and it is only just to say that those who remained have done better than those that left. The

population of the colony and neighbourhood has increased greatly within the past two years. There are now close on two thousand souls where, four years ago, there were barely as many dozen; and everywhere in Victoria I was delighted to find happiness, peace, and plenty. I am again reminded, however, that the rose is just now wearing its richest hue, and that the smiles of early summer, which last but a little while, gladden all the land. A shrewd, intelligent settler in this neighbourhood assures me that, if I were to visit Victoria in spring or autumn, I would find the aspect less inviting. Profitable crops of Indian corn, wheat, rye, oats, and millet were grown both last year and in 1875—the latter year especially. Stock has been doing well, and Mr Grant finds that his colony is rising in favour among intending emigrants. He prefers to sell his land in sections, or 640 acres; and to farm this thoroughly, and tide over probable emergencies at the outset, one would be well to have at least £2000. The majority of those who have settled here within the past two years are Russians; and, being working people without capital, they have reduced the cost of labour greatly. They break prairie and plough land at 5s. or 6s. per acre, which used to cost 12s. or 14s.; and for a day's work Russian women charge only 25 cents, or 1s., and excellent workers they are. Ploughmen are now paid with 18 or 20 dollars a-month (£3, 12s. or £4), out of which they have to board themselves, which will cost 8 or 10 dollars a-month, or £1, 16s. to £2. Favourable as the past two years have been, none have yet made a fortune; but, as an instance of how amply those who stuck to their

land claims have been repaid, it may be stated that, the day before I visited Victoria, one of the original settlers sold for 2283 dollars a quarter section (160 acres) which he pre-empted at 2½ dollars per acre, and which he improved at a cost of 500 dollars—a clear profit of close on 1500 dollars, or £300. This settler has all along been in the employment of Mr Grant, and executed the improvements on his land by contract.

Mr Grant has about 800 acres under cultivation, and, besides wheat, oats, and rye, he grows large quantities of Indian corn and millet for feed to his stock. Exclusive of calves, Mr Grant owns over 800 cattle, about an equal number of cows, two-year-olds, and yearlings. The cows are a selection of Missouri grades and improved Cherokees and Texans; and, for crossing with these, really good shorthorn and polled bulls were imported—the former from England, and the latter from the herd of the late Mr George Brown, Westertown, Fochabers, Scotland. The bulls were grazing close by Victoria Station, and are certainly as good as any one might desire for raising commercial stock. The polled bulls, four in number, were full of flesh, and seemed quite at home on the prairies. Here, also, were four or five good young shorthorn cows, which Mr Grant imported from the Queen's Windsor farm, for the purpose of keeping himself supplied with pure shorthorn bulls. Each cow had a calf at foot, after a high-pedigreed Booth bull, bred by the Hon. Mr Cochrane, Canada. The general herd of cattle is kept on the Smokyhill ranch, about twenty miles from Victoria. I had heard and read very favourable accounts of this herd,

and, after a careful inspection, I cannot say I was disappointed, notwithstanding that, according to the "bos" cattleman, the "roughest old scrag in the whole herd." was the first to make her appearance! To be sure, the cows, with a few exceptions, are unshapely, big-boned, and of inferior quality; but they are, on the whole, the best I have seen of their kind (though the kind is certainly bad), and to the improved bulls they have produced very fair stock—better than any native stock I have seen elsewhere in the Far West or South. The young stock, of course, are not perfect, but the improvement, especially in quality, is very marked. A draw of 80 per cent. of the two-year-olds would probably bring from £16 to £18 a-head at the beginning of the grass season in an average year in Scotland. Considering that, even in the fiercest day in winter, they had no shelter and no feed but what they could find on the open prairies, they were really in splendid condition. All were lively and healthy, and the loss by death during last winter, severe as it was, was less than 5 per cent. This season's calves are nearly all dropped, and it is expected that for every 100 cows 95 calves will be raised. The descendants of the polled bulls are easily recognised; they are nearly all black; few have "scurs" or horns; and in general style and quality they are unmistakable polls. They do not stand so high as the shorthorns' crosses, but are thicker, and, as a rule, more fleshy. The prairies of the West seem admirably adapted for the "glossy blacks," and I am glad to understand that Mr Grant intends giving them a thorough trial. He purposes introducing a few pure polled cows, and will retain all

his black cross heifers for breeding. Last winter Mr Grant fed an equal number of shorthorns and polled crosses of his own rearing on Indian corn, millet, and hay, and on their being slaughtered at Kansas City the blacks were found to weigh, on an average, 100 lbs. a-head more than the roans. The calves are allowed to follow their dams till the fall, when they are taken down to Victoria and fed in a "corral," or fold, on corn and millet during winter. After that they get no more hand-feeding or roof-shelter till rising four years old—at which age Mr Grant intends feeding his steers on Indian corn, millet, and hay, so as to prepare them for the Eastern American and British beef markets. Mr Grant contracts with a man by the year for the management of his cattle—the range on which they are kept being unsettled Government, railway, and school land. He pays three dollars a-head, or 12s. a-year, and the cattleman has to board himself, find his own assistants—three men—and horses (six to eight), and return every animal at the end of the year, or its hide or twenty dollars, less six which may be unaccounted for. Indian corn can be raised here at less than 25 cents a-bushel, and millet and hay at about 7s. 6d. a-ton; and thus it will be seen that cattle can be raised and fed very cheaply in Kansas.

Mr Grant has about 11,000 sheep. His ewes are mostly graded Mexicans; and with these he has been mating, with very satisfactory results, imported Southdown, Cotswold, Lincoln, and Leicester tups. His wool crop ranges from 3 lbs. to 5 lbs. a-head.

Mr Bowman, an English farmer, who settled in the

vicinity of Victoria about a year ago, has established a small herd of very fair shorthorns, and has good prospects of success. Mr Maxwell, notwithstanding serious reverses during the first two years (six acres of his second crop of corn being consumed by grasshoppers in a few hours), stuck to his adopted country, has now 2000 acres, and is carving out a very beautiful, comfortable home for himself. It would be well, both for the Old World and the New, if more noblemen's sons would do likewise.

CHAPTER XII.

COLORADO AND THE TERRITORIES.

COLORADO THE YOUNGEST STATE.—ITS POSITION AND EXTENT.—SURFACE AND SOIL.—ITS ARABLE LAND.—ITS WHEAT OF EXCEPTIONAL QUALITY.—IRRIGATION NECESSARY.—THE VALUE OF THE PRODUCTS OF ITS ARABLE LAND, LIVE STOCK, AND MINES.—HOME CONSUMPT LIKELY TO INCREASE.—NUMBER AND VALUE OF CATTLE IN COLORADO AND THE TERRITORIES.—THE CHARACTERISTICS OF THE CATTLE AND THEIR MANAGEMENT.—THE LOCALITY OF THE RANCHES.—THE ARKANSAS VALLEY.—ST LUIS VALLEY.—COUNTRY SEATS NEAR LARKSPUR.—STRANGE GEOLOGICAL PHENOMENA.—THE COUNTIES OF ARAPAHOE AND ELBERT.—WEIGHT AND PRICES OF CATTLE.—THE "CATTLE KING" OF COLORADO: HIS HERD AND SYSTEM OF MANAGEMENT.—WYOMING AND NEBRASKA HERDS ON THE PLATTE.—SHEEP-FARMING IN COLORADO AND THE TERRITORIES.—YIELD OF WOOL AND MUTTON.—GRASSHOPPERS AND POTATO BEETLES.

COLORADO is the youngest State in the Union, having been formally initiated into its independent statehood less than a year ago. It lies due west of Kansas, is about a third larger than that State (it extends to close on 68 million acres), but is of much less importance in an agricultural point of view. The Rocky Mountains run through the western half of the State, and cover an area of over 300 square miles, rendering that section attractive to the miner, but almost worthless either for stock or arable farming. The eastern portion is rather more undulating than Kansas; its soil is light sandy

loam, not deep, but fertile enough; and the climate is so very dry that crops can be grown profitably only where the land can be irrigated. The arable land is confined mainly to the north-west counties of the eastern half, which are watered by the south fork of the River Platte and its tributaries; and where the land can be efficiently irrigated (and if the grasshopper pest ceases, which may surely be expected in time, for it is scarcely possible to imagine that the wealth of the Far West will continue to be devoured by locusts) profitable crops of the smaller varieties of grain, especially wheat, may be grown. Colorado wheat is of the finest quality; and though the average yield for the State is probably barely equal to that in Kansas, careful, liberal farmers frequently reap as much as twenty-five and thirty bushels per acre. But the fact that irrigation is essential to the satisfactory raising of crops must undoubtedly retard the extension of arable farming, and indeed for ever restrict the area of arable land, and stifle the operations of farmers. At the present time I believe the annual value of the products of the arable land of the State exceeds that of the products of the mines, and also that of live stock of all kinds, which, in 1876, were each nearly 8,000,000 dollars, or £1,600,000; but still the State imports considerable quantities of both wheat and Indian corn. The State should certainly become self-supporting in regard to wheat, though the exports of this variety of grain may never be large; but neither the soil nor the climate of Colorado suits the growth of Indian corn, and the imports of it are likely to increase rather than decrease. The home consumpt in Colorado is likely to grow

rapidly, partly on account of its mineral wealth, and partly, also, owing to the health-giving qualities of its climate, which draw many thousands westwards every summer.

In 1875 the Territories (including Colorado, which was then a Territory) contained 1,076,500 cattle, and last year (1876) Colorado itself had 390,728, valued at about 13 dollars, or £2, 13s., a-head. The system of cattle management pursued in Colorado and the Territories is in the main similar to that obtaining in Texas, the only difference being that while Texas breeds all the cattle it raises and more, Colorado and the Territories breed probably little more than one-half of theirs. They import many thousands of young cattle, almost exclusively from Texas; but in the raising and disposing of their cattle the Colorado and Territory farmers follow the lines of the majority of their brethren in Texas. Hand-feeding and house-shelter are luxuries unknown to Colorado cattle, except in the case of improved breeding stock which are imported from the eastern States, and which are sometimes fed in sheds for a short time the first winter. The cattle run at large on the open prairie without any herding whatever, and are "rounded up" and counted, and the increase branded, in summer, and sold lean, or with whatever beef the prairie grass has put on, generally in the fall, and when three or four years old. The majority are bought on the ranches by dealers, who take the cattle by railway to Kansas City or Chicago, where the leaner lots are sold to farmers in the central and eastern States for feeding during winter, and those carrying a fair "chip o' beef" slaughtered for consumpt in the eastern cities, or for filling

cans in the packeries. A few of the larger stockmen go direct to the eastern markets with their cattle themselves, and usually land at Chicago with the finer lots, Kansas City being another important rendezvous for western cattle. The native cattle of Colorado are mostly graded Texans—crosses between Texas or graded Texas cows and shorthorn or graded bulls. They are a trifle finer in the bone, neater in shape, and show better quality than the *unpolluted* Spaniards; and, when three or four years old, are worth from three to ten dollars more a-head. But still they must be called an inferior class of animals, far from what they ought to be in shape and quality, and in fact up to the desired point in no respect whatever. A few of the cattle-owners have been using very fair shorthorn bulls for several years, and have thereby effected considerable improvement in their stocks; but, as was remarked in reference to the Texas system, anything like the desired improvement can never be secured while all the different stocks are allowed to run at will among each other. * One man might be anxious to procure really good bulls, and willing to expend the necessary capital; but his neighbour is content with any sort of creatures he can pick up, and as the stocks of the two pasture together, the careful man has no security that the advantages of his enterprise, skill, and outlay will return to himself in a larger measure than to his slothful, careless neighbour. Every man must have the exclusive management of his own herd before speedy and satisfactory improvement can be effected. Colorado and the Territories are neither so rich in pastures nor so well watered as Texas; but, notwithstanding these

facts and the severe winters, their death-rate among cattle is lower than in the southern home of the long-horned Spaniards.

The cattle ranges are scattered all over the eastern part of the State, the largest lying in the north-eastern counties—Weld, Arrapahoe, and Elbert. The south-eastern counties—Bent, Pueblo, Fremont, Costill, Huefrano, and Las Animas—contain twice as many sheep as cattle; but still along the Arkansas Valley—one of the best parts of the State—upwards of 80,000 cattle roam about at wild-horse freedom. More than one-fifth of this number is exported every year, chiefly in the fall, when the three and four-year-olds are conveyed by train to Kansas City, Chicago, and elsewhere in the East. A good many of these cattle, when exported, are what Americans would call very fair beef, and are slaughtered immediately on reaching their eastern destinations; but the majority are too lean for killing, and are sold to eastern farmers for feeding. In the valley of St Luis, lying farther west and south, there are several fair-sized herds; but almost all the beef raised here is consumed in the mining centres around, the average price obtained being about 3 cents per lb. In the central counties of El Paso and Douglas there are also a few small herds; but these parts are more celebrated for scenery than for their cover of stock. Mr Perry, President of the Kansas Pacific Railway, and Mr George Grant, of Victoria, Kansas, own two adjoining ranches—they should rather be called country seats—Pleasant Park and Haystacks, near Larkspur, Douglas County, which, for grandeur of scenery and geological interest surpass any-

thing I have yet seen in America. Lying at the base of the Rocky Mountains, they undulate beautifully, are well watered by lively creeks, dotted with trees, and display most interesting geological phenomena in the shape of huge water-worn conglomerate and sandstone rocks—which rise like gigantic haystacks to heights of forty, fifty, and sixty feet—and of strangely scooped-out valleys and rounded bluffs. What would Hugh Miller have given for a few weeks here? At Haystacks Mr Grant has about 70 cross cattle, such as he rears at Victoria; while Mr Perry devotes his attention mainly to the rearing of bulls to supply his neighbours. His cows are improved natives—a fair class of beasts—and with these he mates good shorthorn bulls, which he imports from the East. He sells his young bulls, generally in spring and summer, at about 30 dollars a-head.

The counties of Arrapahoe and Elbert claim over 80,000 cattle, and of these probably not more than one-third have been bred in Colorado. During summer large herds of Texas yearling and two-year-old steers arrive here on foot, and from these the Arrapahoe and Elbert farmers make heavy purchases. The purchased cattle are branded and turned adrift on the prairies, and never again disturbed till they are three or four years old, when they are sent to the autumn markets at Kansas City or Chicago. The buying price ranges from 8 to 15 dollars, and the selling price from 23 to 30 dollars. Cattle are all sold by live weight here. These Texans weigh from 900 to 1000 lbs., and sell at from $2\frac{1}{2}$ to $3\frac{3}{4}$ cents per lb. Native cattle weigh from 1000 to 1200 lbs., and sell at from $3\frac{1}{2}$ to $4\frac{1}{4}$ cents per lb. It is

difficult to obtain a correct idea of the percentage of those imported Texans that die and go astray during the two years they are in Colorado. Some protest that they seldom lose more than 5 per cent., while others say they are invariably 10 per cent. short on the day of sale or delivery.

The "Cattle King" of Colorado is Mr J. W. Iliff, of South Platte. He began cattle-raising on a small scale in 1861, and now owns close on 35,000 cattle and nine ranches, extending to over 15,000 acres, and stretching for thirty miles along the north bank of the south fork of the river Platte. The State land grants, extending to about 650,000 acres, have not as yet been located, and therefore the prairies of Colorado are all (or have been) subject to the Homestead and Pre-emption laws, which make it impossible for a man to buy up large tracts of land. Mr Iliff obtained his large estate by buying out settlers, many of whom were his own cattlemen, who homesteaded or pre-empted most probably with the view of selling off as soon as possible. Mr Iliff keeps from 6000 to 7000 cows, and uses none but shorthorn bulls. He has been using improved sires all along, and now he has probably the finest stock in the State. He buys his bulls generally in Illinois and Iowa, believing that animals bred in these States stand the change to Colorado better than those bred in more eastern States, and pays for each from 60 to 80 dollars. His draft for this year, numbering fifty, arrived the other day, and these will be grazed, during the present summer, on reserved pastures, and fed on hay, in sheds, the first winter, so as to accustom

them gradually to the rigour of the Colorado winters. About the month of July Mr Iliff buys in from 10,000 to 15,000 Texas steers, rising two and three years, and retains them for a year or two, and then exports them to Chicago as beef in the fall, along with three and four-year-old steers of his own breeding. When bought, these Texans weigh from 600 to 800 lbs., and cost from 11 to 15 dollars; and when sold they weigh, on the average, about 1000 lbs., and bring from 30 to 37 dollars, or from $3\frac{1}{4}$ to $3\frac{3}{4}$ cents per lb. of live weight. Mr Iliff's steers of his own breeding weigh from 1100 to 1200 lbs. when sold, and bring from 38 to 50 dollars, or from $3\frac{1}{2}$ to $4\frac{1}{4}$ cents per lb. These native steers would probably weigh from 600 to 700 lbs. in beef, which would thus cost the man who slaughters the animals from $6\frac{1}{2}$ to $7\frac{1}{2}$ cents, or from $3\frac{1}{4}$ d. to $3\frac{3}{4}$ d., per lb. Mr Iliff employs about forty men all summer, and a dozen during winter, and pays them from 25 to 30 dollars a-month, and board. He requires 200 horses, and these are all bought in and come mainly from Texas, along with the cattle. Occasionally, in a severe snow-storm, the cattle get a little hay, but never taste corn.

A good many herds belonging to Wyoming and Nebraska stock-owners mingle with Mr Iliff's cattle between the north and south forks of the Platte River. Messrs Swan Brothers have about 1200; Messrs Cary Brothers, 10,000; Messrs Creighton & M'Shane, 10,000; Messrs Sturgers & Lane, 8000; and Mr Searight, 6000; while several others have herds nearly as large. All these men work, in the

main, on the same plan as Mr Iliff; but all are not so careful in the procuring of really good sires.

Sheep-farming in the Far West, if carefully conducted, is indeed a very profitable line of business; but still it seems pretty certain that larger profits can be realised from cattle-raising. The sheep-farmer's risks and incidental outlays — for labour, dipping material, &c. — are much greater than those of the cattle-owner; and if the latter's capital lies longer within the hides of his stock, he obtains a larger return when it is released. In 1875 the Territories (including Colorado) had 3,049,200 sheep, valued at about 11s. a-head; while last year Colorado alone had 449,763, valued at barely 8s. The dry summers and stormy winters of the northern Territories interfere seriously with sheep-farming in these regions; and even Colorado is not all that could be desired in this respect. Hay has to be provided to tide over exceptionally severe snow-storms; and after everything possible has been done to save life, heavy losses are frequently sustained. The ewe portions of the Colorado flocks are made up partly of pure Mexicans and partly of graded Mexicans (crosses between merino or graded tups and Mexican ewes), and from these and merino or graded tups a fair class of sheep is reared. A few flocks have been graded carefully for several years, and these are of very creditable merit; but the large majority of the Colorado sheep are greatly in want of improvement. Three, four, and five-year-old wethers are sold as mutton when there is any demand; but wool is the principal source of revenue, the old ewes being allowed

to die off as they may. The better flocks yield an average of 5 lbs. of wool, second-rate sheep $3\frac{1}{2}$ lbs., and Mexicans and inferior grades $2\frac{1}{2}$ lbs. Wool is selling at present at from 15 to 20 cents per lb. The shearing season has just commenced, and will last for about six weeks. Shearers get $6\frac{1}{2}$ cents a-head for shearing Mexicans and low grades, and $7\frac{1}{2}$ for high grades, the latter being more difficult to shear because of the "rinkles" which the merino tups impart to their progeny. A good hand shears from 60 to 80 sheep in a day. I spent a recent afternoon among a body of shearers at work on a ranch on Bijou Creek, Arrapahoe County, and I must say I did not envy the handling the woolly creatures had to submit to, especially when a "bad 'un" turned up. A system of "public shearings," or shearing competitions, was inaugurated last month, when Mr Ivory Phillips and Messrs Willard Brothers, El Paso County, had a friendly contest. Ten merino tups belonging to each were clipt; and those owned by Mr Phillips averaged 17 lbs. each of wool, and those by Messrs Willard Brothers 22 lbs. The carcasses of the former ten averaged 93 lbs., and those of the latter 129 lbs. The fleece of one tup belonging to the Messrs Willard weighed no less than $32\frac{1}{2}$ lbs.

Colorado has hitherto had its full share of the grasshopper pest, but little or no damage has been done by these destructive creatures this season, the cold wet weather having destroyed the unhatched eggs and killed the young locusts. Crops are looking well. But has Colorado not an insect-plague of its own? Who has not heard of the

Colorado potato beetle? I have seen large numbers of these insects this season, but the farmers here seem to take little or no notice of their operations. It is not so on the other side of the Atlantic. Scotch potato-growers tremble lest the little brown fellow should reach them in a potato sack or in the pocket of some emigrant! I shall shake mine well!

CHAPTER XIII.

NEBRASKA.

NEBRASKA'S PART IN THE MEAT-PRODUCTION OF AMERICA.—THE AREA OF THE STATE.—NUMBER AND VALUE OF ITS CATTLE.—STOCK-FARMING LIMITED IN EXTENT.—THE LOCALITY OF THE RANCHES.—CATTLE AND THEIR MANAGEMENT.—SCARCITY OF HOUSE-SHELTER.—MIXED FARMING PAYING WELL.—SCARCITY OF CAPITAL MAKING EXTENSIVE MIXED FARMING IMPOSSIBLE.—AN AMERICAN IDEA OF "FARMING."—THE STOCK AND HOUSES OF AN AVERAGE SETTLER.—SHEEP-FARMING.—HOG-RAISING.—PROFITS FROM GRAIN FED TO HOGS.—THE SETTLEMENT OF NEBRASKA.—ITS CLIMATE.—RAINFALL AND TEMPERATURE.—SOIL AND WATER.—SCARCITY OF WOOD.—COAL AND PEAT.—ARABLE AREA.—CROPS: THEIR YIELD AND VALUE.—COST OF GRAIN-PRODUCTION.—PROFITS IN A FAIR AVERAGE SEASON.—THESE SEASONS FEW AND FAR BETWEEN.—GRAIN-FARMING UNPROFITABLE.—SETTLERS PINCHED.—GRASSHOPPERS AND POTATO BEETLES.

NEBRASKA plays but a secondary part in the meat-production of America. Not that its area is limited—it extends to over 78 million acres—nor that its resources are meagre—it has as good soil as any State in the Union, and also a good climate; but somehow stock-farming has been developed more slowly in it than in any of the other young States. Unlike Texas, it had no early Spanish invaders to cover its prairies with longhorns; and great as is the multitude of emigrants that have settled here within the past six or seven years, only a very few have devoted any part of their atten-

tion to stock-raising, probably for a very sufficient reason—the want of capital. At the 1st of January 1876 the cows of Nebraska numbered 59,700, and were valued at £5, 12s. a-head; and oxen and other cattle 86,900, valued at £4, 3s. a-head. According to the calculation, previously applied, that every one hundred American people require 80 cattle, Nebraska barely contains as many cattle as would support its own population; but the majority of Nebraska settlers are more pork eaters than beef eaters, and therefore in reality a considerable proportion is available for outside consumpt. The ranches of this State are confined almost exclusively to the western half, and lie mostly on the Platte and in the peninsula between the north and south forks of that river. The cattle that cover these ranches are very similar in kind to the cattle of Colorado, and so also is the way in which they are raised and disposed of. In fact, as already mentioned, several of the larger Nebraska herds mingle with Colorado and Wyoming herds on the pastures between the north and south forks of the river Platte, where exactly the same system of management is pursued by all the owners. There is almost as little corn or hay feeding here as in Colorado, as little house-shelter, and as much starvation in winter, though the pastures of Nebraska are slightly richer than those of Colorado. A few of the more wealthy settlers in the eastern division have divided their attention between cattle and grain; and these men, of course, work on a very different system from that pursued by their brethren on the ranches. They house their cattle during winter—a longer and a more severe winter than that

of the north of Scotland—and feed them on hay and straw. They find this varied system of farming most profitable; and the only wonder is that it has not been adopted by fifty for every one that has given it a trial. Large profits seem to be realised by “shipping” (the American term for moving cattle by train) cattle from the Western States, and feeding them in the Eastern States, where Indian corn costs from 35 to 45 cents per bushel. Surely, then, it would pay to feed these cattle in such States as Kansas, Nebraska, and Texas, where millions of bushels of Indian corn can be raised at less than 25 cents! To be sure, the majority of those who have settled as farmers in the Far West—probably 90 per cent. of them—have not sufficient capital to enable them to launch out widely into combined stock and arable farming—the only perfect ideal of farming, at least in the eyes of an old countryman; but it seems somewhat strange that those capitalists who have gone into cattle-raising so largely do not procure farms in the cheap lands of the Far West, and grow Indian corn to feed their own cattle, and send them direct to the Eastern markets themselves, and thus pocket the profits which are now pocketed by middlemen and Eastern farmers. The majority of these ranchmen, however, know almost nothing about arable farming, and seem to consider that their occupation has about as much relationship to the noble industry of agriculture as the work of the mechanic. Indeed, if one were to speak to an American of a cattle-raiser or stockman as a farmer, he would stare in wonder. I happened to remark to a newspaper editor in a Western State, the other day, that

cattle and grain received about equal attention from farmers in Scotland, and was rather amused to find that in his next morning's issue he informed his readers that "one half of Scotland is a pastoral range given up to cattle, and the other arable land devoted to agriculture!"

Each settler has two, three, four, or five or more cows, according to the dimensions of his holding and the weight of his purse; and though a good many of these animals are superior to the ranch cattle, a large number are thin, "scranky" creatures, half starved in winter, by want both of shelter and food. The calves that are raised from these cows and imported graded bulls of a secondary class seldom turn out well; and no wonder, for they get little milk and less shelter. As yet there is no regular market for these young cattle, and farmers can calculate with no certainty when they can dispose of them, or what for; and without shed accommodation they cannot feed them themselves. Shedding is lamentably deficient; and what is worse, farmers in the meantime have no spare money to increase it. On a homestead or holding of 160 acres the whole house accommodation usually consists of a small frame, sod, or "dug-out" dwelling-house (there are fewer of the latter here than in Colorado), a little frame granary, a half dug-out sod or frame stable (with plenty of daylight from all directions), and a mere apology for a byre—probably only a roof of cross sticks and straw held up by a few posts. With such insufficient shelter, and such severe winters, it need be no matter for surprise that settlers often lose heavily by death among their small herds. I have met one or two

who have been utterly ruined in this way. Settlers do themselves an injustice by procuring more birds than cages—every cow should have her stall.

Sheep-farming occupies but very little attention in Nebraska. The number in the State at the 1st of January 1876 was 48,900, and their value 11s. a-head. Mexican and merino grades, such as are in Colorado, predominate; but recently a few have been using long-woolled rams with great advantage. In some instances large profits are made here also. The Hon. Mr Stocking, President of the Nebraska Board of Agriculture, says that for the year ending June 1875 he realised a profit of 3143 dollars (£628, 12s.) off 1625 sheep. The raising of mutton is beginning to receive a little attention.

Hog raising and feeding has extended greatly within the past two years, and now there are over 80,000 in the State, worth 30s. a-head. There are still a great many inferior nondescripts, but hosts of Poland-Chinas and Berkshires are being introduced, and the breed in general immensely improved. There is now a regular market for pork, and those that pay proper attention to the raising of it realise handsome profits. When pork fetches 5 cents (2½d.) per lb., as it sometimes does, farmers can realise 50 cents (2s.) per bushel for Indian corn by giving it to hogs, and 40 cents (1s. 7d.) when pork brings 4 cents (2d.).

Nebraska, like everything else in America, has been well advertised; and though it does not rank high as a stock-raising State, it has certainly cut a prominent figure in the history of emigration. In 1856, two years after it was

formed as a Territory, the population was only 10,716; while last year, the ninth year of Nebraska's existence as an independent State, it (the population) had reached 259,912 an increase, it is asserted, unequalled in the same period by any other State in the Union. Of course there are a good many Scotchmen in Nebraska. Where are there no canny Scots? But still the majority of the people who have settled in this State during the past six or seven years have come from Germany, Sweden, and Denmark, and from other parts of the American continent. That Nebraska should be in favour among emigrants will surprise no one who glances over the State; for, as far as appearances go, it is indeed one of the most desirable corners of Brother Jonathan's broad vineyard. Its climate, like that of the Far West generally, is very healthy for man and beast, resembling in the main that of Kansas, as does the general contour of the State. Nebraska has heavier winters and more rapid changes in temperature; but, on the other hand, its rainfall is greater, and therefore its risks of damage from drought less. The mean annual rainfall of Nebraska is about 29 inches, and the mean temperature 47 deg., the fall of rain in the agricultural months, from April to September, both inclusive, ranging from twenty to twenty-three inches. During recent years, at any rate, more damage has been done to crops by cold, wet, unseasonable springs and heavy hail-storms in summer than by drought. A Scotch settler, who is growing his fifth crop, says he has lost two crops (or at least they suffered as much damage as to destroy all the profits) by inclement weather, and one partly

by drought and partly by grasshoppers. The soil of Nebraska is, on the whole, rather richer than that of Kansas, or, to be more exact, it has a greater breadth of rich soil. It has less light, sandy loam, and more of the pure lacustrine deposit. This latter variety of soil, though deficient in organic matter and potash, is very rich and productive, and covers about three-fourths of the whole area of this State. A drift deposit underlies, and this, together with the large percentage of silicious matter in the lacustrine soil, makes the natural drainage unusually good. Heavy rains disappear in a marvellously short space of time. Along the Platte, the Republican, and the Blue rivers and their tributaries there is a considerable extent of fine bottom or alluvial land, which some prefer even to the rich black, soft, animal and vegetable mould known as the lacustrine deposit. This soil is so soft and free of stones that the horses which cultivate it are seldom dignified with shoes, while the ploughmen very often go barefooted. Running streams are scarce in this State, but "draw" wells of from 40 to 70 feet deep supply abundance of the purest of water. One of the greatest drawbacks is the want of fuel, the whole extent of wood, including spare patches planted by settlers, being only about 10 per cent. of the area of the State. Coal is said to exist in one or two parts, but has never been worked to any great extent; and, according to Professor Aughey, there are deposits of peat on several rivers and creeks, which, "if worked, and the material properly prepared, would supply the State with fuel for a hundred of years, and perhaps a much longer period." Peat

"reck" in America! Brother Jonathan would snuff at that.

The total area under all kinds of crops in Nebraska in 1875 measured 1,201,757 acres—Indian corn occupying 700,000; wheat, 346,938; oats, 125,000; and potatoes, 1500—the other crops being rye, barley, and buckwheat. The average yield of Indian corn was 40 bushels per acre, and the average market price 20 cents per bushel—which made the total value of the crop £1, 12s. per acre. Nebraska is undoubtedly one of the best maize-producing States in the Union; but about 5 bushels less than the yield of 1875 would be a fair average crop for an average year, without grasshoppers. The spring of 1875 was very wet and unseasonable, and, in consequence, the wheat crop was deficient, yielding on the average barely 10 bushels per acre. The quality, too, was bad, equal only to the second grade in Chicago, the standard weight of which is 54 lbs. per bushel, and the selling price was only about 64 cents per lb. A fair average for what is called an ordinary year—a year without drought, hailstorms, or grasshoppers—would be 15 bushels per acre, and a fair price 80 cents per bushel. Wheat is all sown in spring here, probably because of the severity and length of the winter frosts. In 1875, rye, which is sometimes sown in the fall, averaged 16 bushels per acre, and was worth 52 cents per bushel, or about £1, 13s. per acre. Oats averaged 35 bushels, and was worth 22 cents per bushel, or £1, 11s. per acre. Though oats yield plenty of bushels, the grain is usually of very inferior quality,

and seldom weighs over 32 lbs. per bushel, while it is often as low as 25 lbs. Barley, like wheat, suffered damage, and yielded only 22 bushels per acre—about 3 bushels under a fair average—and was worth 45 cents per bushel, or £1, 19s. 6d. per acre. Barley weighs little over 40 lbs. per bushel. Buckwheat yielded 21 bushels per acre, worth 75 cents per bushel, or £3, 3s. per acre.

The cost of producing an acre of wheat and an acre of oats is about the same, and may be noted as follows, barley being about one dollar less per acre for thrashing, but the same in every other respect:—Ploughing, 1.25 dol.; seed, sowing, and harrowing (only two stripes), 1.50 dol.; harvesting, 3 dols.; and thrashing, 1.50 dol.—total, 7.25 dols., or £1, 9s. The cost of harvesting is about one dollar less per acre when the grain is merely “headed”—that is, reaped by a machine that cuts off the heads of the grain only, and leaves the straw standing, to be ploughed down or burned. An acre of Indian corn costs as follows:—Ploughing, 1.25 dol.; seed and planting (one bushel seeds eight acres), 25 cents; cultivating (three times), 1 dol.; and husking or reaping, 90 cents—total, 3.40 dols., or 13s. 6d. Now, according to these figures, which are made up from the statements of many, the Nebraska farmers would soon be in comfortable circumstances if they only could get *fair average* seasons, for, as will be seen from the following, their profits would be moderately satisfactory:—*Wheat*—Yield per acre, 15 bushels; cost of production, 7.25 dols., or

£1, 9s.; market value at 80 cents (3s. 2½d.) per bushel, 12 dols., or £2, 8s.; profit per acre, 4.75 dols., or 19s.

Oats—Yield per acre, 35 bushels; cost of production, 7.25 dols., or £1, 9s.; market value at 25 cents (1s.) per bushel, 8.75 dols., or £1, 15s.; profit, 1.50 dol., or 6s.

Barley—Yield per acre, 25 bushels; cost of production, 6.25 dols., or £1, 5s.; market value at 40 cents (1s. 7d.) per bushel, 10 dols., or £2; profit, 3.75 dols., or 15s.

Indian corn—Yield per acre, 35 bushels; cost of production, 3.40 dols., or 13s. 7d.; market value at 25 cents (1s.) per bushel, 8.75 dols., or £1, 15s.; profit, 5.35 dols., or £1, 1s. On 80 acres improved farms there are usually about 35 acres under wheat, 20 under Indian corn, 15 under barley, and 5 under oats; so that, in a fair average season, the owner of this farm would realise a clear profit from his grain crop of 337 dols., or £67, 8s.: wheat, 166.25 dols. (£33, 5s.); Indian corn, 107 dols. (£21, 8s.); barley, 56.25 dols. (£11, 5s.); oats, 7.50 dols. (£1, 10s.).

These ordinary or fair average seasons, however, have been very exceptional for several years; for probably less than 10 per cent. of those who have settled in Nebraska since 1870 have reaped more than one full crop—that is, a crop undamaged either by wet inclement springs, by hail-storms in summer, by drought, or by grasshoppers. And, according to the best evidence I could procure, almost as small a percentage have really realised any profit from their grain crops; while many have had positive losses. Nothing is more evident than that in

the Far West exclusive grain-growing does not pay, and that profit can be realised only from mixed stock and grain-farming. But the large majority of the settlers are too poor to enter into this system, even to buy a sufficient number of hogs; and therefore they must plod away in hopes of better luck with their grain crops. They are to blame themselves in one respect: they cultivate the land in a shamefully careless manner. Withal, there can be little doubt that, as a rule, these settlers have improved their prospects, if not their present wealth, by coming here; and though many of them are certainly *pinched*, they would do well to "hold on" and wait the increase in the value of the land which will by-and-by enrich, if not themselves, certainly their successors. A Scotch settler, who, before emigrating, farmed a small holding in Aberdeenshire, says he considers himself better situated here than if he were sitting on his old farm rent free; and yet this settler has lost (or got damaged) three crops out of five. Government land, near to railway stations, is now almost all taken up, but railway land is selling at low figures—about \$4 cash, or from 6 to 10 on ten years' credit, with interest at 6 per cent. The usual rate of interest on money on loan in the Far West is 10 per cent.

The appearance of small grain this season is encouraging, but not so with Indian corn, the cold weather and unprecedentedly heavy rain of the past six weeks having seriously retarded the progress of this crop, and, indeed, delayed the planting of several fields till now. The inclemency of the weather, however, has had one good effect: it has so

checked the depredations of the grasshoppers—killed so many—that no damage worth speaking of is likely to be sustained this year. The potato beetle has been here, and played sad havoc with the potato crop the last two years. Nebraska farmers seem to be greatly scared at these creatures. They have commenced to do mischief this season already, and some farmers are busy brushing them off the potato plants and killing them, or poisoning them with Paris-green.

CHAPTER XIV.

ARABLE FARMING IN IOWA.

EXTENT OF IOWA.—SURFACE, GEOLOGY, AND SOIL.—PASTURE.—ITS CLIMATE.—AMERICAN THUNDER-STORMS.—IOWA AS AN AGRICULTURAL STATE.—THE VALUE OF ITS LAND.—INCREASE DURING THE PAST TWENTY-FIVE YEARS.—GOVERNOR NEWBOLD'S FARM.—SCOTCHMEN IN IOWA.—THE GREATEST GAIN COMES FROM INCREASE IN VALUE OF LAND.—COST OF PRAIRIE LAND.—ARABLE AREA.—CROPS: THEIR YIELD AND VALUE.—WHEAT FALLING OFF THROUGH INDIFFERENT CULTIVATION AND CONSTANT CROPPING.—WILL THE RICH SOIL OF THE FAR WEST EVER REQUIRE MANURE?—BAD CULTIVATION.—HOW TIMOTHY-SEED IS SOMETIMES SOWN.—A TASKMASTER RECOMMENDED TO AMERICAN FARMERS.

IOWA is more undulating than either Kansas, Colorado, or Nebraska; and lying, as it does, between the Mississippi and Missouri, it is irregularly indented by both these mighty rivers. It extends to 35,228,000 acres, and has enjoyed independent statehood for more than thirty years. The surface geology of Iowa resembles that of Nebraska, but its lacustrine soil contains a much larger percentage of sand than that of its neighbour on the west. Occasionally a hard "pan" subsoil (a chemical combination of certain elements) occurs, greatly lessening the agricultural value of the land, and often proving deceptive to strangers, for on the surface, while in their natural state, these patches show very little, if any, difference from land that is free from the "pan." It is

easily discovered, however, by digging. With these few exceptions, the subsoil of the State is nearly the same as the surface soil, though the latter has attained a different colour by exposure to the atmosphere. The soil everywhere contains abundance of lime, or its equivalents, and hence the State is specially adapted to the growth of grasses of the richest quality. Blue grass, that fine variety which has rendered Kentucky almost unrivalled as a stock-raising region, is gradually spreading all over the West, and here, especially on fields that have been cultivated, or on prairies closely pastured, it is speedily crushing out other varieties and filling their room itself. White clover, which is so fond of lime, and which is so abundant in some parts of the State, when richly mixed with blue grass, makes as fine pasture as any one could wish for. Blue grass does not suit for hay, and Timothy is sown largely for this purpose as well as for pasture, and grows remarkably well, considering the careless manner in which it is generally sown. The prairie grass affords good pasture during the three summer months; but after or before that, at least for any length of time, it is a loss to leave cattle entirely dependent upon it. The natural drainage of Iowa, save in those patches with a "pan," is very satisfactory, and numerous moderately-sized rivers and creeks intersect the State, while the rainfall usually exceeds 30 inches, the fall in summer and spring being abundant.

The climate of Iowa, however, is not one of its best features; it is one of its worst. Its winters are invariably very severe: snowfalls are often heavy, and frost frequently

binds the soil to the depth of five feet. The summers, again, are hot, and during this season serious damage is sustained occasionally by hail and thunder storms. This is said to be a very exceptional season, and well may it be so, for during the nine weeks I have been wandering over this seemingly boundless domain I have seen more hail-storms, heard more thunder, and seen more lightning than would be experienced in the Old World in the course of twenty years. I can count up on my fingers every day upon which I have heard no thunder and seen no lightning since for the first time I gazed in wonder at an American thunder-storm while whirling through the wilds of Eastern Texas seven weeks ago. We had such a thunder-storm here last afternoon—such thunder, such lightning, such rain—that, if I had had half the superstition of a Highland housewife, I would have joined issue with Dr Cumming, and commanded the Turks and Russians to sheathe their swords and prepare for the Great Day! Why do Americans insist on having everything on such a large scale?

Notwithstanding its severe winters, Iowa is an excellent agricultural State; and that it has been well settled need surprise no one who sees its beautiful rich soil. It is exceptionally well supplied with railways, and has abundance of coal and wood to meet its own demands—the area under wood being almost equal to about 16 per cent. of the whole area of the State. Every farmer who has been settled for eight, or ten, or more years, has his house surrounded by a beautiful grove of cottonwood (similar to our lime trees) and other trees; and in the south and east there is a consider-

able quantity of natural wood. The dwelling-houses in this country are very different from what they are in the old country. Nine out of every ten are constructed of wood, and are light, attractive, and flimsy, and wanting in substantiality. The majority of the older-settled farmers in this State have large, handsome residences; and the other day, while driving up to a palatial-looking mansion (of wood), the "boy of the buggy" remarked, "That farmer, sir, can accommodate 150 persons in his house." Generally speaking, farmers are, comparatively, much more careful in securing snug nests for themselves than in providing shelter for their cattle. The land of Iowa was all subject to the Homestead and Pre-emption Laws, except what was granted to railway companies—the Government price being a dollar and a quarter (5s.) per acre. The southern and eastern portions of the State have been pretty well settled for over twenty years, and there the increase in the value of the land during that time ranges from 30 to 50 dollars per acre—£6 to £10. A great many of the present holders bought their land at from 5 to 10 dollars per acre twenty or twenty-five years ago; and now, if they were to sell out, they would easily realise from 30 to 50 dollars, according to situation and the value of improvements. A well-improved farm in this neighbourhood has just been sold at 50 dollars per acre, and an adjoining farmer, who bought his land about twenty years ago at 8 dollars an acre, says he would expect over 50 dollars if he were to sell out now. Both these farms have very fine dwelling-houses and good shed accommodation. The Governor of Iowa, Mr Newbold, informed me that,

twenty-three years ago, he purchased 160 acres of land in the south-west of the State at 4 dollars an acre, and that he had sold it last year at 45 dollars an acre, having cultivated it for eighteen years, and improved it by buildings and otherwise to the value of 2000 dollars, for which he considered himself more than repaid by the use of the land.

"Is that a fair example of the increase in the value of land in the south-west of the State?" "No; it was a choice bit of land. I was very fortunate in getting it. Thirty dollars would be about the average increase. We have a great many of your countrymen here, many of them among our best and most influential farmers; and some have occupied important positions in the Legislature of the State. Most of them came here poor; but those who have been settled for ten, fifteen, or twenty years are now well-to-do. A few had money when they came—these got on best at first; but those who had little capital to commence with, though hard-up for some time, are now the richer class of the two. They take better care of what they make." Mr Newbold is very hopeful that the Far West will benefit greatly by the exportation of American beef to Britain, and thinks that American farmers will not fail to take advantage of the new outlet for this product. "Americans quickly recognise any enterprise in which there is money." The majority of the older settlers, on the whole, seem to be in comfortable circumstances, many of them wealthy; but though they have made fair profits from the produce of their farms, there seems little doubt that, if they were to sell out, they would find their greatest gain in the increase in the value of their

land. This remark applies with equal force to every part of the Far West where farmers have settled; and, indeed, little else has many a hard-up hungry family on the American prairies to sustain and console them in their present reduced circumstances but the hope that the history of early settlers in Iowa may also be their history. A very large extent of land has been settled in the northern and western parts of the State during the past ten years; but still there is a large area of prairie land held mostly either by land speculators or railway companies. The value of well-situated good prairie land here has increased in ten years from one dollar and a quarter to from five to ten dollars per acre. Many hundreds, indeed thousands, of acres of good, well-situated prairie land could still be bought at from four to six dollars cash per acre.

Iowa comes next to Illinois in regard to the yield of Indian corn. The total area under all kinds of crops in 1875 was 10,214,394 acres, of which over $4\frac{1}{2}$ million acres were under Indian corn, over 3 million under wheat, 36,000 under rye, close on 800,000 under oats, 300,000 under barley, 8000 under buckwheat, and close on a million and a half under hay—the remainder being under potatoes. Indian corn yielded 35 bushels per acre, worth, in the market, 27 cents (1s. 1d.) per bushel; wheat averaged only 9 bushels per acre, worth 71 cents (2s. 10d.) per bushel; rye, 18 bushels, worth 27 cents (1s. 1d.); oats, 37 bushels, worth 24 cents (11½d.); barley, 22 bushels, worth 53 cents (2s. 1½d.); buckwheat, 19 bushels, worth 77 cents (3s. 1d.); and hay, about a ton and a fourth per acre, worth £1, 3s.

a-ton. By far the greater portion of the Indian corn crop is consumed in the State by stock; but still, in 1875, over 12 million bushels were conveyed to outside markets—mostly Chicago. For several years wheat was the principal crop of Iowa, and is so still in the newly-settled parts, where the land has not yet been exhausted, and where capital is so scarce that the settlers are unable to procure stock to consume Indian corn. But in the older-settled districts wheat is losing favour. It has been suffering severe damage by hail and thunder storms, and its yield, even when untouched by storms, has been falling off. And no wonder. On many fields it had been grown almost continually for ten or fifteen years, and all the while the land was badly cultivated, and never scented manure of any kind. Exponents of the Far West will tell you that, for generations to come, manure would be a useless commodity on its lands; they will tell you that manure spoils the land by encouraging the growth of weeds. But were the farmers of the Far West to farm as they ought to, and cultivate these weeds out of existence, would not the manure then encourage the growth of sown crops? It would, of course, be unnecessary to apply manure to "maiden" soil; but soil which has produced wheat for ten or fifteen consecutive (or nearly consecutive) years *must* have returned to it, in the shape of manure, supplies of those elements which that crop specially requires and absorbs, else the land will no longer grow that crop satisfactorily. A few Iowa farmers are applying farmyard manure to their wheat-fields, and they find the improvement wonderful. But wheat must also have thoroughly good cultivation, and that

is what I have not as yet seen in many parts of America. The sweeping remarks of that pronounced loquacious Iowa farmer whom I met away down on the borders of that "wonderful country" Texas, I now find, are well founded; for even in the older-settled parts of Iowa cultivation is very far from what it should be. If ploughed at all—it is often only scratched by a cultivator—the land is turned over in broad, irregular furrows, and then all the harrowing it receives when sown with small grain is sometimes only two stripes, or one double "tining," as I have heard it called in Scotland. The Indian corn field is cultivated three times, but with such imperfect ploughing, and so much vacant space between the plants—from three to four feet—it should get twice as much. Timothy-seed is frequently sown on the stubble-field in the autumn, and left dependent on rain and hail showers to be driven into the soil, seldom receiving even the assistance of a brush! The American farmers would be none the worse of a lesson on the "rules of good husbandry" as laid down by some Scottish landlords. I would not wish them to smart under these lessons so long as many Scotch farmers have; but a short period under a hard task-master would do much good.

CHAPTER XV.

STOCK-FARMING IN IOWA.

THE NUMBER AND VALUE OF CATTLE IN IOWA.—THEIR CHARACTERISTICS AND MANAGEMENT.—SCARCITY OF HOUSE ACCOMMODATION.—THE ARCHITECTURAL FEATURES OF AN "IOWA BARN."—HOW CATTLE ARE FED.—WEIGHT AND COST OF NATIVE STEERS.—STEPS OF IMPROVEMENT.—COST OF GRAIN-FED BEEF.—ILLINOIS CATTLE GRAZED IN IOWA.—TOTAL ANNUAL EXPORT OF BEEF FROM IOWA.—A CALCULATION OF PROFITS AFFORDED BY GOOD CATTLE WELL HANDLED, AND INFERIOR CATTLE BADLY HANDLED.—SHORTHORNS IN IOWA.—HOG-RAISING.—SHEEP-FARMING.

ON the first of January 1876 Iowa had 621,800 cows, valued at £5, 8s. a-head, and 913,200 oxen and other cattle, valued at about £4, 4s. a-head. At least three-fourths (probably more) of the whole cattle stock of the State are what are known as the "common" cattle of the country—a nondescript, strangely mixed class, mostly descended from one or other or all of the different breeds early introduced into America. To be sure, they are a degree or two better than the Colorado and Texas cattle; but still, considering the fine rich country which they cover, they are very far from what they ought to be. They are indeed an inferior class of cattle—big-boned, high-standing, unshapely, flat-ribbed, sharp-shouldered, and coarse in quality. They have no lack of size; they would, in fact,

rank higher in the stock-yards were their big rough form moulded down into one more even, more compact, and, above all, better in quality. All Iowa's share of these cattle are bred within itself, every farmer having four, eight, ten, twenty, or forty or more cows, according to the extent of his holding and the dimensions and contents of his dollar-sack. In the older-settled districts there is a considerable extent of sown pasture, but by far the greater part of the grass area of the State is natural prairie, affording good pasture in summer, but little that is of even fair quality in winter. On these pastures and on "stalk" fields (the fields on which the Indian corn grew, and on which the stalks of the corn are left standing) cows and young stock are kept all the year round, receiving a little hay when the grass gets buried amongst snow. Iowa has remarkably little house accommodation for cattle. As a rule, the common cattle are provided with no shelter whatever, save what they may find around a hay-stack, or in that elegant erection designated an "Iowa barn"—a building of some fame in the Far West, and costing just about as much as the turf hen-house of the Highlands of Scotland! Economy must now be the watchword of the British farmers, and probably some of these ill-fated fellows may thank me for initiating them into the mystery of erecting cheap houses for their cattle. Drive two opposite rows of posts into the ground, leaving eight or ten feet between each post each way; lay a network of sticks across the top of these; cover that with a liberal coating of straw, held down by sticks, and you will have an Iowa barn in all the glory of its architectural grandeur!

A few steers are usually sent out of the State in the fall in lean condition, to be fed in districts farther east; but a very large majority of Iowa steers are fed in their native State. During their third winter—when rising three years old—they get as much Indian corn as they can eat, the corn being given to them in troughs in open fields. The larger and more wealthy farmers feed their steers in this way themselves, but most of the smaller farmers sell their steers to “stockmen,” who buy in large numbers of steers rising three years in the summer and fall, and fatten them on the prairie in winter with corn as the farmers do. Some of the animals, of course, fatten faster than others, and they are “shipped” to Chicago just as they become ripe. These common steers, when moderately fat, and three or four years old (farmers do not feed so highly here as in England and Scotland), weigh on the average from 1200 to 1400 lbs., and sell at from 4 to 5 cents (2d. to 2½d.) per lb. of live weight, the freight to Chicago adding from 3½ to 4 dollars (14s. to 16s.) a-head more. When bought lean in the fall these steers cost about 3½ cents (1¼d.) per lb., and weigh about 1000 or 1050 lbs. When fairly fed they yield about 55 per cent. of beef to their gross weight, and thus the cost of their carcasses in the Chicago market would be from 8 to 9½ cents (4d. to 4¾d.) per lb.

Farmers are very slowly coming to realise the advantage of using really good bulls, and of rearing an altogether improved stock of cattle; but still the demand for shorthorn bulls, to mate with common or grade cows, has increased considerably within the past few years. A good many of

the more enterprising and more successful farmers are bestowing a great deal more attention on the erection of houses and the improving of their cattle stock; and on several farms a very fair stock of cattle are seen—a stock vastly superior to the general run of common cattle. Some have been trying the feeding of two-year-old steers in sheds, and these have generally found that in this way cattle weighing about 1350 lbs. can be fed on 45 or 50 bushels of Indian corn, during the winter months, as well as common cattle outside with 70 bushels. The storms in winter are often so severe that while they continue those animals which are exposed in open fields make but very little progress; they require almost all the food they consume to keep up the animal heat. And then, again, animals of better quality bring a little more than 5 cents ($2\frac{1}{2}$ d.) per lb. A few are beginning to grind their corn before giving it to their cattle, and are also mixing it with a little rye and other small grain. Every one admits the desirability of increased house accommodation and an improved stock of cattle; but all plead poverty. The spirit is willing, but the *purse* is weak.

While a few Iowa cattle are sent to other States to be fed, a good many Illinois herds come to the prairies of Iowa for summer pasturage. The owners of these herds contract with men to find summer meat for their cattle at about a dollar a-head, or 6 or 7 cents for every pound added to the weight of the cattle during the time they have them under their charge, the men being bound to return every animal or its hide at the end of the summer. A few Texan steers still

find their way into Iowa, but the number is gradually decreasing. A law has been in force for some years prohibiting their admittance into the State at certain seasons of the year, with the view of avoiding any risk of the introduction of that fatal cattle disease known as "Texas fever." There are still a few ranches in the north-west of Iowa, but here, as in Kansas, cattle on unfenced prairies have all to be herded.

To calculate to a certainty the exact amount of beef exported in a year from any one State is indeed a very difficult matter. During the year 1875, 279,691 live cattle were conveyed eastwards out of Iowa by the different lines of railway, and close on 100,000 in carcases. Of those exported alive, probably about one-sixth, or close on 47,000, would be sent away lean, or, at least, barely ready for the butcher; so that the total export of beef from Iowa in that year would be probably about 1,031,000 cwts., the cost price being about 9 cents ($4\frac{1}{2}$ d.) per lb. Mr Pliny Nichols, West Liberty, Iowa, an intelligent, experienced, enterprising farmer, has published an interesting calculation of the results that might be attained by the rearing of good cattle by good handling, as opposed to bad cattle and bad handling, such as exist in the main at present. He calculates that in Iowa 400,000 cattle are turned off every year; that that number of common cattle, under common handling, would bring only 16,000,000 dols. (£3,200,000), or an average of 40 dols. (£8) a-head; that under good handling they would bring 25,200,000 dols. (£5,040,000), or an average of 63 dols. (£12, 12s.) a-head: that that number of grades or short-

horn crosses, with good handling, would bring 33,600,000 dols. (£6,720,000), or an average of 84 dols. (£16, 16s.) a-head; that that number of thoroughbreds or pure shorthorns, with good handling, would bring 43,200,000 dols. (£8,640,000), or an average of 108 dols. (£21, 12s.) a-head—profit of good over bad handling of common cattle, 8,800,000 dols. (£1,760,000); profit of grades over common cattle, good handling, 8,400,000 dols. (£1,680,000); profit of good-handled grades over common cattle as commonly handled, 17,600,000 dols. (£3,520,000); profit of thoroughbreds over common cattle, good handling, 18,000,000 dols. (£3,600,000); profit of thoroughbreds with good handling over common cattle as commonly handled, 27,200,000 dols. (£5,440,000). He calculates that common cattle will sell on the average at $4\frac{1}{2}$ cents ($2\frac{1}{4}$ d.) per lb. of live weight, grades at $5\frac{1}{2}$ cents ($2\frac{3}{4}$ d.), and thoroughbreds at 6 cents (3d.); and that common cattle at three and a half years will average 1400 lbs. live weight, grades at three years 1600 lbs., and thoroughbreds at three years 1800 lbs. These statements give a pretty clear idea of the inferior character of the present stock of Iowa cattle and their bad management; but such a difference between “grades” and “thoroughbreds” is not in accordance with the experience of most British farmers.

Mr Jacobs, of West Liberty, and a few others have been breeding shorthorns for close on ten years, and during the past four years the number of shorthorns in Iowa has been increased tenfold. There are now a large number of herds located all through the older-settled parts, the head centre

being West Liberty, in the east of the State. But of short-horn-breeding in Iowa more anon.

The number of hogs in Iowa in 1875 was 3,296,200, and their value £1, 12s. a-head. Berkshires of a fair class predominate, but Poland-Chinas and crosses between the two also find considerable favour. Those who feed cattle with corn keep about two hogs to each steer; and among the cattle these porkers fatten with wonderful rapidity. The packing interest in Iowa is large. In the season 1874-5 the number of hogs packed in this State was 409,927, the average gross weight being about 255 lbs.; the average yield of lard, 34 lbs.; the average price per 100 lbs., 6 dols. and 23 cents; the aggregate cost, 6,535,524 dols. (£1,307,104, 16s.); and the amount of barrelled pork, 31,618 lbs. The total number of live hogs conveyed eastwards out of the State by the various railways in 1875 was 1,516,787.

The number of sheep in Iowa in 1875 was 1,663,900, valued at 11s. a-head. As a rule, the sheep stock is an inferior mixed class, resembling that of Colorado. The main product is wool, of which 13,782,331 lbs. were conveyed eastwards out of the State in 1875.

CHAPTER XVI.

ARABLE, SHEEP, AND HOG-FARMING IN ILLINOIS.

AN AUCTIONEER'S DESCRIPTION OF ILLINOIS.—THANKS "FOR THE VARIATION."—ILLINOIS FLAT TO A FAULT.—DRAINAGE NECESSARY.—SOIL.—EXTENT.—POSITION.—CLIMATE.—SETTLEMENT.—VALUE OF LAND.—INCREASE DURING THE PAST TWENTY-FIVE OR THIRTY YEARS.—THE HARDSHIPS OF LIFE IN ILLINOIS THEN.—THE COMFORTS NOW.—PERCENTAGE OF WOOD.—POPULATION.—ARABLE AREA.—SIZE AND NUMBER OF FARMS.—CROPS : THEIR YIELD AND VALUE.—WHEAT LOSING FAVOUR UNDER A DELUSION. — BAD CULTIVATION. — SHEEP - FARMING. — HOG-RAISING.—AMERICAN AND/ENGLISH HOGS COMPARED.

COLONEL J. W. JUDY, the Thornton of Illinois, while addressing a crowd of well-conditioned agriculturists around a shorthorn sale ring in the neighbourhood of Springfield, Illinois, a few days ago, remarked :—"Gentlemen, we have a beautiful country here ; as fine soil as any man could wish ; and for a hundred miles around it is as good as here ; and then, if you take another hundred miles, it is still as good"—(a voice, "With a little variation")—"and let us thank God for the variation." Undoubtedly Illinois is flat to a fault. With the exception of Louisiana and Delaware, it is probably the most level State in the Union ; the elevation at the extreme southern point being about 350 feet, and in the most elevated part barely 1000 feet. To a

stranger many portions seem "dead" level; and if a well of water were to spring up at his feet he would be puzzled to tell which way the water would be most likely to run. As a natural consequence, a very large extent will have to be thoroughly drained, or "tiled," to use an Americanism, before it can be taxed to its utmost with crops. A few spots have already been partially "tiled," with satisfactory results; but the day of draining has not yet dawned on America. It seems that land that refuses to produce a rich crop of wheat for the tenth or fifteenth successive season, or shows a necessity for draining, is considered by American farmers as no longer worthy of being cultivated. "It must go into grass; there is something wrong with it; it seems not to suit wheat; and then it is so wet."

The drift formation underlies the subsoil, which consists most generally of yellow clay, gravel taking its place in some parts of the north, and blue clay in what is known as the Grand Prairie region. The surface soil varies from light sandy loam (which is confined mainly to the northern parts) to very deep lacustrine and alluvial soils; and, on the whole, it is exceptionally fertile and abundant. There is an extraordinary quantity of it to the acre. I had heard it pronounced the largest body of equally rich land to be seen anywhere under the sun; and certainly I have seen nothing to equal it either in the Old World or the New. Illinois, be it remembered, is no small patch of land. It extends to 35,459,200 acres, or nearly equal to one-half of the British Isles. The geological position of the State is very favourable to the farmer, and so also is its climate. Its

mean annual temperature varies from 40 deg. in the north to 56 deg. in the south; while the rainfall averages about 40 inches—36 at Chicago in the north, and 44 at Chester in the south. The winters are usually very mild, and snow seldom lies more than a few days at a time. The Messrs Brown, of the Grove Park Farm, Berlin, whose cattle are out on the fields summer and winter, have kept a record of the snowfall during the past seven years; and on an average for these years they have had to feed their cattle with hay only *eleven* days each year.

Illinois has been pretty well settled for twenty-five or thirty years, a good many of the present holders, or their parents, having "entered" their land at Government price—a dollar and a quarter, or five shillings sterling, per acre. Fair average land, within easy distance of a railway station, is now selling at from 50 to 60 dollars (£10 to £12) per acre, according to the extent of improvements. In Sangamon County, near the centre of the State, a four thousand two hundred acre farm has just been bought by a Mr Scully, from Ireland, at 53 dollars (£10, 12s.) per acre, and rented back at 3 dollars (12s.) per acre to the previous owners, by whom, or for whom, it was entered at Government price less than thirty years ago. Life in Illinois then was very different from what it is now. In those days, which are still fresh in the memories of many, the ploughboy had often to combine the arts of war with his supremely peaceful calling; on his plough he carried a loaded gun to ward off the savage Indian. Now, in those very parts where the "red" man conducted his wild warfare

so recently, the inhabitants repose in peace in their light, attractive residences, with the doors neither locked nor barred. In America, thirty years seem to do the work of a century in most other parts of the world. Twenty-seven years ago 800 acres of land in Sangamon County were bought for 1000 dollars (£200), and sold twelve years ago for 30,000 dollars (£6000), a profit of 29,000 dollars, or £5800, in fifteen years. A considerable extent of this State is worked by tenants who pay a money rent of about 3 dollars (12s.) per acre, or a certain proportion of the crops grown—a third, or a half, or two-fifths. In close proximity to towns, of course, land is more valuable. A farm adjoining Springfield has just been rented at 5 dollars (£1) per acre. The same quality of land as near to Edinburgh would be worth £4 (20 dols.) per acre.

About nineteen per cent. of the area of Illinois is under wood; and where wood is difficult to be had, coal, which is abundant in the State, can easily be procured. Farmers' houses (especially of the older settlers, or "pioneers," whose foresight and energy have won lives of affluence and comfort for their families) are placed in charming groves of richly-foliated trees, and wear a quiet, picturesque appearance that is very inviting. A gay white wooden house contrasts beautifully with thriving clumps of trees.

The population of Illinois is supposed to be close on three millions. Its arable area in 1875 was 15,663,872 acres. The number of farms in the last census year—1870—was 202,803, and their average size 120 acres—a decrease of 18 acres between 1870 and 1860. These farms occupied

25,882,861 acres, of which a little over 19,000,000 acres were stated to be improved, and which were valued at about 37 dollars (£7, 8s.) per acre. In 1875 the improved area was stated to be a little over 25,000,000 acres.

Indian corn is the principal crop, occupying in 1875 no less than 8,163,265 acres, the area under this crop having gradually increased from about 6,200,000 in 1870. Illinois greatly exceeds all the other States in the Union in regard to the production of Indian corn. Iowa, the second maize State, is so far behind as to be scarcely worth placing—"the first is Eclipse, the second is nowhere." The average yield of Indian corn in this State in 1875 was 34 bushels per acre, and the average market price about 34 cents (1s. 4½d.) per bushel—equal to about 11 dollars 50 cents (£2, 6s.) per acre. The cost of an acre of Indian corn in Illinois—the cost of seed and labour—is about 5 dollars (£1), leaving for interest, cartage, and profit about 6 dollars 50 cents, or £1, 6s., per acre. Here, however, as farther west, it seldom pays a farmer to grow Indian corn and sell it; it pays him better to feed stock with it.

Wheat is losing favour in this State, especially in the northern parts. It is so "excessively exhausting and impoverishing" that when sown for ten or fifteen consecutive, or nearly consecutive, years on the same field the yield begins to fall off! And then wheat is abandoned, and probably declared unsuited to that particular part of the State. In the southern counties, where the soil is richer, and where, in consequence, the yield has not begun to fall off, the area under wheat is increasing rather than

decreasing. Winter wheat predominates in the south, and spring wheat in the north. The area under wheat in 1875 was 2,600,000 acres, the average yield about 10 bushels per acre, and the average market price 91 cents (3s. 7½d.) per bushel.

Oats occupied considerably over 2,000,000 acres in 1875, and yielded 33 bushels per acre, worth 28 cents (1s. 1½d.) each. The other crops grown are rye, barley, buckwheat, potatoes, and hay—the area under the latter in 1875 being nearly equal to that of oats—2,200,000 acres.

Hay yielded on the average about a ton and a fourth per acre, and was worth 39s. per ton. Timothy and clover are sown pretty extensively; and when carefully sown, and the land fairly cultivated, from two and a half to three tons per acre are sometimes reaped. I have seen a few fields this season that should yield about two tons and a half. These yields of grain are exceedingly small; but, indeed, notwithstanding the extremely rich soil of Illinois, heavy yields can never be expected until a better system of cultivation is adopted, and until much of the land is drained, worked in regular rotation, and manured when exhausted by that impoverishing crop wheat.

I have certainly seen a few well-cultivated farms in Illinois; and these farmers, and those who, by way of experiment, cultivated well for one year, state that they have had very satisfactory yields. But, speaking generally for the State, it must be said that the system of cultivation (if there be any system) is really wretchedly bad. America is ahead of Great Britain in regard to the efficiency of its

farm implements, and therefore it is all the more to the discredit of the New-World farmers that they cultivate their land so imperfectly. I have been told that I am seeing the American farms under unfavourable circumstances, as weeds are said to be *higher and thicker* than usual, owing to the exceptionally heavy rains of this season, which, by the way, have done great damage to crops, especially to Indian corn. And some may ask, Why always harp on that subject of bad cultivation? What has it to do with the raising of beef? I answer, America produces so much beef under bad cultivation; how much more will it produce under good cultivation! It would be well to bear in mind that what America is doing now is but a sample of what it is capable of doing if its magnificent soil were only worked as it ought, and by-and-by will be.

Between 1860 and 1870 Illinois doubled its number of sheep; but since the latter year the number has decreased from about 1,500,000 to 1,300,000. The estimated average value of sheep last year was barely 10s. a-head. There are still a large number of inferior sheep in the State, such as are to be found in Iowa, Colorado, and elsewhere in the West; but during the past ten or twelve years very great improvement has been effected in most flocks by the introduction of improved rams of the Merino, Cotswold, Southdown, and Leicester breeds. The Stock-Importing Association of Illinois, which was formed in 1857, did valuable service to the flock-owners by introducing a number of superior Cotswolds and Southdowns. A little more attention is now being paid to the raising of mutton,

but wool is still the principal product. Since 1860 the total yield of wool has increased close on 180 per cent., or about 80 per cent. more than the increase in the number of sheep.

Illinois is probably the largest pork-producing State in the Union. On the 1st of January 1876 this State contained 2,640,100 hogs, valued at £1, 14s. 6d. a-head. Berkshires and Poland-Chinas, and crosses between these two breeds, are largely in the majority. The Illinois farmers are proud of their herds of swine. I remarked to a farmer, the other day, that I had seen some very fine pigs in the State, and he retorted, with some firmness, "Yes, sir, we have as fine hogs as ever England produced." He has never been in that fair clime, but looks forward to his visit with pleasure!

CHAPTER XVII.

STOCK-FARMING IN ILLINOIS.

ILLINOIS THE GREATEST BEEF-PRODUCING STATE IN THE UNION.—NUMBER AND VALUE OF ITS CATTLE.—THE CHARACTERISTICS OF ITS CATTLE.—PROPORTIONS OF EACH CLASS.—THEIR ORIGIN.—THE FIRST IMPORTATION OF SHORTHORNS.—THE USE OF SHORTHORN BULLS.—THE SYSTEM OF CATTLE MANAGEMENT.—SCARCITY OF SHED ACCOMMODATION.—HOW AMERICAN FARMERS DEFEND THEIR SYSTEM OF ANIMAL HUSBANDRY.—WEIGHT AND COST OF THE VARIOUS KINDS OF CATTLE.—THE VALUE OF CATTLE ANNUALLY SENT OUT OF THE STATE.—THE PRICE OF BEEF IN LOCAL MARKETS.—AN INVASION BY TEXAS CATTLE.—THE ILLINOIS FARMERS ALARMED.—GROVE PARK FARM AND ITS HERD OF CATTLE.—HOW MANAGED.—HOW THEY PAY.

ILLINOIS is the greatest beef-producing State in America, and hence its stock-farming is at present of special interest to British farmers. At the 1st of January 1876 Illinois had 717,800 cows, valued at 29 dollars, or £5, 16s., each; and 1,287,000 oxen and other cattle, worth about 21½ dollars, or £4, 6s., a-head.

The cattle stock of this State is greatly mixed. Probably three-fourths of the whole are made up of common American cattle, only a single remove (many of them not even that) above the common cattle of Iowa, the characteristics of which were referred to in a previous chapter. The other fourth consists most largely of inferior grades, or crosses between

common cows and grade bulls, and dairy cattle, shorthorns and good grades ranking nearly equal in numerical strength. The early French settlers in this State imported a good many small-horned cattle from Canada about a century ago; but the large majority of the Illinois cattle are descendants from cattle introduced from the New England States, Kentucky, Ohio, and Indiana. For a long time very little attention seems to have been paid to selection in breeding; and even yet there is a wonderful amount of indifference on this point, which is one of the most important in animal husbandry. The late Mr James N. Brown, of the Grove Park Farm, introduced the first shorthorns into Illinois in 1834, when he emigrated thither from Kentucky; but it was not till after 1850 that these most valuable animals began to move into the State in even moderate numbers. A rather peculiar big-boned, high-standing, heavy breed of cattle, called the "Patton" stock, descended from the longhorns of England and the shorthorns, found their way into Illinois even before Mr Brown's shorthorns, and their descendants, now pretty numerous, can still be recognised by their massive, plain, longhorn character. They are fairly shaped and heavy, but too rough and big in the bone. A sprinkling of shorthorn blood can be seen in a very large proportion of the common cattle of the State; but so long as inferior grade bulls continue to be used so generally, improvement will be effected very slowly and imperfectly. High grade bulls of good individual merit produce very fair stock; but it is where pure shorthorn sires are used, and there only, that the satisfactory improvement is seen. During the past few years a

number of the more enterprising and better-to-do farmers have been breeding from full-blooded sires, and their young stock show very marked improvement compared to animals reared from grade bulls, unless the grades happen to be specially good.

The general system of feeding in Illinois is pretty much the same as in Iowa. Steers are kept lean (in cow and heifer condition), and fed exclusively on grass, with perhaps a little fodder during a snow-storm in winter, till rising three years old, when they get a liberal supply of Indian corn in troughs in open fields, and are sent off just as they become fat. Those who feed most largely on grass alone send off the greater proportion in the fall, but those who use a good deal of Indian corn "ship" at all seasons of the year. By "shipping," be it remembered, is here meant only conveying to the local markets, not exporting to Britain. Americans ship everything, both by land and sea! When the grass gets buried in snow, the cattle receive a little hay or Indian corn as it grew, stalk, blades, and ear all joined. This latter feed is devoured very speedily by cattle, and they seem to thrive well upon it. A small allowance of salt is given to the cattle once a-week, and probably no meal is relished more heartily than this one. When an American farmer wishes to inspect, or "show off," his cattle, he enters the field or "lot" (as Americans call it) in which they are grazing, and howls at the top of his voice, and in a few minutes the bellowing brutes will be around him, licking their lips and looking for their salt.

Shed accommodation is almost as scarce in Illinois as in

Iowa; and though the winters of Illinois are very considerably milder than those of its neighbour on the west, there can be no doubt that the cattle-feeding interest of Illinois would be substantially improved by increased house accommodation. It has been said that men never want reasons to support their will, and certainly the typical American farmer shows no want of arguments to sustain his slow, easy-going system of cattle-feeding. If he were to house his cattle during winter, they would all die of colds when they would get out in spring; without exercise they would not take on beef properly; they are healthier by being always outside, and because of their being always outside they do not feel a storm when it comes; and so on he goes with an array of arguments that would in themselves cover more paper than ten cents would carry across the Atlantic.

Illinois cattle vary greatly in weight as well as in quality. The common cattle weigh from 1200 to 1550 lbs. live weight when fat; low grades from 1400 to 1700 lbs.; and good grades from 1500 to 1800 lbs.—a few reaching and exceeding even 2000 lbs. Here, as in Iowa, "stockmen" buy up and feed very large numbers of steers, while a good many farmers feed all they breed, and no more. When lean, common cattle cost from 3 to 4 cents ($1\frac{1}{2}$ d. to 2d.) per lb. of live or gross weight, and grades from 4 to 5 cents (2d. to $2\frac{1}{2}$ d.), according to quality. Fairly fed common cattle bring, when sold fat, from $4\frac{1}{2}$ to $5\frac{1}{2}$ cents ($2\frac{1}{4}$ d. to $2\frac{3}{4}$ d.) per lb., and grades from 5 to 7 cents ($2\frac{1}{2}$ d. to $3\frac{1}{2}$ d.) per lb. Common cattle "dress" from 50 to 55 per cent. of beef to their gross weight, and grades from 55 to 60 per cent.,

only a very few of the finest lots reaching the highest point.

Chicago forms the outlet for almost all the surplus beef of Illinois, and that is, indeed, no small amount. According to the census of 1870, the value of the cattle sold out of the State for slaughter was no less than 56,718,944 dols., or £11,343,788, 16s.; and since then the increase must be very considerable. The cost of conveying cattle to Chicago, of course, varies greatly in different parts of the State; but from about the central counties, where the greater number of cattle (at least of good cattle) are fed, it ranges from two dollars to two and a half a-head. The cost to New York is about forty cents (1s. 7d.) for every 100 lbs. A few farmers now ship their beef cattle to Buffalo, New York, and find a good ready market there.

The smaller cattle are generally utilised in the local markets, and here, as in most parts of Scotland, people complain that the best beef is sent to the large towns, and the inferior qualities retained to fill their mouths. Beef of the first quality is certainly very difficult to be had in the rural parts even of Illinois, and when it can be got a high price has to be paid for it. In Springfield, the thriving capital of Illinois, good beef is just now selling at about 10 cents, or 5d., per lb. I have got better American beef in Edinburgh than anywhere in America, except in New York and Chicago.

Illinois farmers themselves are not altogether unacquainted with cattle importation surprises. When, at the close of the American War, the immense, long-pent-up herds

of Texas began to send forth their hundreds of thousands of longhorned Spaniards into the Northern States, where the cattle stock had been reduced and prices raised by the war, the farmers in these parts, who were in any way dependent on live-stock farming, trembled for their livelihoods. These huge rustic Texans could be bought so cheaply, and the supply seemed so inexhaustible, that the farmers of Illinois and neighbouring States became almost as much afraid of the Texan beef as British farmers now are of American beef. But every dog has his day, and so also had the Texan Spaniards in Illinois. As the supply lessened prices rose, and, two or three years ago, stockmen and farmers found that as much money could be made by handling native steers instead of these longhorns, and now only a comparatively small number of Texans find their way to Illinois.

From these few notes some idea may be gathered of the general characteristics of the Illinois cattle and their management; but there are a few peculiar, unique systems in the State that deserve special notice. One of these is seen at the Grove Park Farm, near Berlin, not far from the centre of the State, which farm is owned by three brothers, sons of the late Mr James N. Brown, who was for many years one of the leading men in agricultural circles in Illinois, and who has already been referred to as the importer of the first shorthorns into this State. Grove Park Farm extends to 3000 acres, each of the three brothers holding separate titles for 1000 acres, and all the three "running" the farm jointly. Almost all the farm has been cultivated; but now it is entirely under grass, having

been sown out—part of it thirty years ago—with Timothy, blue grass, and clover. The Timothy and clover grow well the first two or three years, but after that the blue grass gets the “upper hand” of both, and finally drives them out altogether. White clover is indigenous to the soil, which is a rich loam impregnated with lime, and is coming up very thickly. Blue grass and white clover make the very best of pasture, and just now (June) the cattle on this farm are standing to the knees amongst grass. The farm is divided into eight or nine fields, and fenced with sage orange, which, with numerous spreading trees here and there all over the property, afford the cattle cool, shady retreats from the scorching sun. For seven years the Messrs Brown handled Texan steers, but now (and for two years back) they buy only common American steers. Their system, which is reduced to a simplicity and regularity truly admirable, may best be illustrated by tracing the history of the herd of steers now on the farm. These number 900, are rising three and four years old, were bought in November last, mostly in Chicago, Kansas City, and St Louis markets, and are the best class of common steers raised in Missouri, Iowa and Wisconsin. When brought home, they were graded into three lots, and put into separate fields. No Indian corn is grown on the farm, and these cattle have no hand-feeding whatever, except a little hay during a severe snow-storm, and a small quantity of salt now and again. As soon as they become fat they are shipped to Chicago in lots; and by the 1st of November they will be all away, and the fields vacant for another 900, which will have to pass through exactly the

same simple ordeal. When bought in, these steers now on the farm were lean, and weighed, on the average, about 1000 lbs.; now they weigh about 1200 lbs., and it is expected that by the time they are shipped they will average 1350 lbs. or 1400 lbs. They are the best of their kind I have as yet seen; but then their kind is not good. They are big-boned, and lacking in quality; and, like all those common cattle, they travel so much and are kept so lean for the first two years of their existence, that they show a good deal of gristly meat. The buying price was $3\frac{1}{4}$ cents ($15\frac{1}{8}$ d.) per lb., and it is hoped that the selling price may be $5\frac{1}{2}$ cents ($2\frac{3}{4}$ d.) per lb. live weight. A steer will require four acres of grass to feed him for a year; the value of that land may be noted at 5 dollars (£1) per acre; the interest at 10 per cent. (the ordinary rate of interest in America) will be 20 dollars (£4) for the four acres; the interest on the money lying in the steer for a year, 3 dollars (12s.); and the cost of salt and labour (there are only four hired men at Grove Park Farm), about 1 dollar (4s.); and thus the cost of keeping a steer for a year would be about 24 dollars, or £4, 16s. Hitherto the Messrs Brown have been averaging about 30 dollars (£6) a-head for the year's keep, and this year they expect 37 dollars, or £7, 8s. Their system is unique and simple, and, as will be seen, very profitable.

CHAPTER XVIII.

STOCK-FARMING IN ILLINOIS—(CONTINUED).

MR GILLET'S ESTATE AND HERD OF CATTLE.—THE FOUNDATION OF HIS HERD.—A WONDERFUL SIRE.—1000 CALVES FROM ONE BULL.—THE SIZE OF THE HERD.—ITS CHARACTERISTICS.—HOW MANAGED.—AMOUNT OF GRAIN EACH BULLOCK CONSUMES.—NO HOUSE-FEEDING.—MR GILLET'S BEEVES IN COMPARISON WITH SCOTLAND'S CONTINGENT TO SMITHFIELD CHRISTMAS MARKET.—MR GILLET THE LARGEST "BEEF MANUFACTURER" IN THE WORLD.—HIS CONSIGNMENTS TO BRITAIN.—WEIGHT OF HIS BULLOCKS.—COST OF THEIR BEEF AT HOME AND IN BRITAIN.—CHANGE IN HIS SYSTEM TO SUIT THE DEAD-MEAT TRADE.

ANOTHER exceptional, and in many ways highly praiseworthy, system of stock-farming in Illinois is that pursued by Mr John B. Gillet, Elkhart, Macon County. Mr Gillet began cattle-rearing in 1846, with a small number—sixteen or eighteen—of the best native cows to be had, and a bull of good individual merit, which he bought, along with his dam, from Mr Skinner, Kentucky. He thinks the cow was a pedigreed shorthorn, and that the bull was also a pure shorthorn, although he did not ask for a pedigree, which, by the way, is to him of little moment so long as individual merit is to his mind. This non-pedigreed Kentuckian at once proved himself an impressive sire, and for no less than eighteen years Mr Gillet bred to him, and obtained by him

during that period no fewer than about 1000 calves! He continued fleshy and active to the last, and in 1864, in his nineteenth year, was sold to the butcher for 80 dollars (£16), his live weight being then 1950 lbs. Out of the 50 or 55 calves he begot every year, only about 10 were females, and the majority of these were retained to increase the cow branch of the herd. With these daughters of the famous old sire good high grades or non-pedigreed short-horn bulls were mated, and then the choicest of the male calves thus raised were retained and used along with the old bull, and also after he had finished his long and valuable career. In this way Mr Gillet has built up a herd of cattle of a very creditable character, displaying a distinct family stamp, and forming a pleasant contrast to the big-boned, coarse natives around. He now owns about 12,000 acres of land, by far the greater part of which is under grass—blue grass, Timothy, and clover—the remainder being mostly devoted to Indian corn. He plants a considerable area of the Indian corn by his own servants, but the larger portion is raised by tenants, with whom he contracts to deliver the corn to him at a certain price. When he supplies them with the land, seed, horses, and implements—everything but labour—he pays them 10 cents (5d.) for every bushel they raise, and 15 cents (7½d.) when he affords only the land.

Mr Gillet's herd now numbers close on 2300 head—500 cows and 700 three and four-year-old steers, the remainder being calves, yearlings, and two-year-olds. The bull at the top of the herd is a pure shorthorn of fair size and weight,

and his calves can easily be recognised by their thick quarters and broad backs. The cows show a large infusion of shorthorn blood and very fair quality, and, though lean, are a good, thrifty, useful lot. Barring a little coarseness about the head and horn, which, by the way, is characteristic of the herd, the yearlings and two-year-olds would rank among the average of Scotch crosses or grades of the same ages in respect to quality, size, and form; but with regard to condition, the two-year-olds especially are considerably behind. Hitherto Mr Gillet has commenced to feed his steers only when they are rising three years; until they reach that age they have to feed themselves, sometimes scrape their daily pittance from beneath a covering of snow. Of the 700 steers now on hand, close on one-half were selected from neighbouring herds last fall, and along with the home-bred steers have since been fed liberally on Indian corn and grass, or hay or corn fodder—either of the latter two being allowed in winter when the grass gets covered with snow. They are now all in Mr Gillet's own possession, but during winter a number were let out to neighbours, who fed them during that season for 7 cents ($3\frac{1}{2}$ d.) for every pound added to the weight of the cattle—a system that could scarcely have been profitable to the feeders. These 700 steers will be sold in lots of about one hundred head in August, September, and October; and during their feeding year they will have consumed about 130 bushels of Indian corn a-head. But, then, for every steer fed close on 500 lbs. of pork, worth at least 5 cents ($2\frac{1}{2}$ d.) per lb., will be raised wholly off grass and whatever

corn the cattle may drop. There are scarcely any cattle-sheds on the property, and feeding is carried on entirely in the open fields. During winter a good deal of Indian corn is given as it grew, with ear, stalk, and blade attached; but in summer, and during favourable weather in winter, the ears are carted into troughs—one man with a team and waggon feeding 400 cattle in four or five hours. The majority of these steers are already in very fair condition; and with eight or ten weeks under Tillyfour's care they would make a prime lot for the British Metropolitan market. There are a few ordinary animals among them; but, with a draft of 200 thrown away, they would rank on a level with Scotland's contingent to the London Christmas market on any of the last four or five years—that is, before these have received the "last dip." Every year a number of better bullocks than any in Mr Gillet's lot leave Scotland for the English markets, and, again, the Scotch Christmas steers are fed off about six or eight months younger, and give indications of affording a higher percentage of good beef than ever Mr Gillet's could under his system of feeding; but still, taking the number into account, I do not hesitate to say that this enterprising American farmer can boast of the grandest bestial display I have ever seen in one man's possession. I believe it may safely be said that he is the largest "beef manufacturer" in the world; he prepares, in round numbers, about 810,000 lbs., or about 367 tons, of beef every year, and pretty nearly half as much pork.

It was from this herd that Mr Eastman, of New York, obtained those beautiful samples of American beef that took England by storm, and began the present agitation, less than

two years ago, and that found their way into the residences of the Mayor of London and other English notables; and, ever since, Mr Gillet has had a keen demand for his prime beeves for the British markets. In all, during the past two years, about 1400 of his steers have been exported to Britain, mostly alive—some sailing from New York, some from Philadelphia, and some from Canada. Two of his bullocks are now being prepared in the south of England for the coming fat stock shows; but, considering the manner in which Mr Gillet's cattle are fed, and the amount of walking they accomplish during the first two years of their existence, it would be surprising if these two should take high places of honour in competition with animals fed highly from their calfhood onwards.*

The buying price for those which Mr Gillet bought in last fall was from 5 to 5¾ cents (2½d. to 2¾d.) per lb., and he hopes that this season he will obtain on the average about 7 cents (3½d.) per lb. on his farm. By the 1st of September a few would weigh about 2000 lbs., but the average may be about 1800 lbs. live weight at home. On the journey to Chicago or New York they would sink about 50 lbs. a-head. They will probably "dress" from 60 to 62 lbs. of beef for every 100 lbs. of gross weight, or from about 1000 to 1100 lbs. each; and, supposing they were meant for the British markets, at what price could their beef be prepared for shipping? The cost price on Mr Gillet's farm is 7 cents (3½d.) per lb., or 7 dols. (£1, 8s.) per 100 lbs. of live weight; the cost of transit to New York, 40 cents (1s. 7d.) per 100 lbs.; and thus, leaving the hide and tallow and small offal to meet

* These bullocks did not put in appearance at any of the English fat stock shows.

slaughtering and other expenses and profits in New York (which I shall suppose they would ; I may ascertain afterwards), the cost of the dressed beef would be from $11\frac{1}{2}$ to $12\frac{1}{2}$ cents, or, as near as might be, from $5\frac{1}{2}$ d. to 6d. per lb. And Mr Gillet, like many other Americans, is of opinion that neither the cost of production nor the cost of transit is likely to increase to any appreciable extent for many years. In fact, he assured me that he would be willing to contract to sell all the beef he could raise during the next ten years at the price he expects to receive this year. At the present rates for beef and pork, he calculates that every bushel of Indian corn upon which he feeds his cattle and hogs brings him 50 cents, or about 20 cents more than the average market price in Illinois.

There are only a few in this State that feed so liberally and intelligently as Mr Gillet does : his case is quite exceptional ; but I have detailed it pretty fully, believing that it affords a fair sample of what the cattle and swine feeding of Illinois generally is likely to develop into during the next five or ten years. It may be remarked that Mr Gillet has been "looking into" the newly-opened market for prime American beef, has been advising with Mr Eastman, and has come home resolved to bury the pride he justly cherished in raising two thousand pound four-year-old steers, and to endeavour to pack within the hides of two-year-olds 800 or 900 lbs. of sweet juicy beef for transmission across the Atlantic to fill the mouths of hungry Britons, believing that young tender beef is more palatable to those connoisseurs among steaks and "rounds" than tough, flabby old beef.

CHAPTER XIX.

FARMING IN KENTUCKY.

KENTUCKY A DESIRABLE STATE.—PICTURESQUE SCENERY.—MILD CLIMATE.—PERCENTAGE OF WOOD.—EXTENT.—POPULATION.—SOIL.—THE "BLUE GRASS REGION."—WHAT THE "BLUE GRASS" REALLY IS.—ITS VALUE AS PASTURE AND HAY.—SETTLEMENT.—VALUE OF LAND.—FARM "IMPROVEMENTS."—ARABLE AREA.—CROPS: THEIR YIELD AND VALUE.—SOWN GRASSES.—THE NUMBER AND VALUE OF CATTLE.—THE CHARACTERISTICS OF KENTUCKY CATTLE.—THE INFLUENCE OF SHORTHORNS STIFLED.—SYSTEM OF FEEDING.—NUMBER OF GOOD GRADES IN THE BLUE GRASS REGION.—HIGH GRADES.—WEIGHT AND COST OF VARIOUS CLASSES OF STEERS.—GROWING DEMAND FOR SHORTHORN BULLS.—COST OF BEEF—PRODUCTION NOT EXPECTED TO INCREASE.—SHEEP—FARMING.—HOG—RAISING.—LABOURERS' WAGES.

IN many respects Kentucky is probably one of the most desirable regions in America. It has an excellent climate—moderate rainfall and mild winters—it undulates gracefully, is beautifully wooded, and adorned with handsome palatial residences and magnificent gardens, which lend to the lovely landscape an air of affluence and genuine social enjoyment, and a settled aspect not to be observed in many other parts of the States. The extent of wood in the State is equal to 48 per cent. of its whole area, which measures 24,115,200 acres. The population in 1870 was 1,321,011. Limestone is the surface rock in the greater part of the State, and the soil is a kindly, fertile, light-coloured loam, quite plentiful in

the lower parts, but scarce on the hilly regions. It is probably not so rich as the soil of a large area of Illinois and similar States; but then it is very sharp and productive, and, by virtue of its limey character, is specially adapted to the production of grass.

The "Blue Grass Region" of Kentucky, which includes the whole of five counties and part of several others, is one of the famed spots of America. It is almost unequalled for the richness and durability of its pastures, is well sheltered from wind, and equally well shaded from the sun; and, barring its multitudinous army of restless insects, it is probably one of the best stock districts on either continent. The blue grass is the universal garment of the soil; and though it seldom grows quite long enough (mainly for want of moisture) to make hay, it affords not only abundance of summer pasture, but also, if preserved, plenty of fodder in winter. This much-talked-of grass seems to be none else than the *Poa Pratensis* of the English meadows; and, though there is diversity of opinion on the subject, the most generally accepted and best supported idea is that the blue grass seed was first imported from England to Virginia, and afterwards from there to Ohio, and thence to Kentucky, about a century ago. The other prevailing notion is that blue grass is indigenous to the American soil, and certainly this idea has also strong support. Blue grass seed is in great demand all over the older-settled States, and Kentucky farmers realise considerable sums by stripping the seed from the fields by implements that run like reapers, and selling it. It yields from 2 to 10 bushels per

acre, and brings from 30 to 50 cents (1s. 2½d. to 2s.) per bushel.

Kentucky has been well settled for more than half a century, and very few of its pioneers are now alive. Their sons, in fact, have grown grey, while their great-grandchildren roam about in happy childhood. A few farms change owners every year, but there are probably fewer transactions of this kind in Kentucky than in any other State in the Union. The increase in the value of land has been very slight for ten years, and many experienced farmers say it is not likely to increase very largely for some years to come. Current prices range from 65 to 150 dollars per acre (£13 to £30), according to locality, quality of land, and value of improvements. Less draining is required here than in Illinois, and the improvements consist mainly of houses, fences, and roads. The main thoroughfares of the State are good turnpikes, and so also are many of the private roads. Fencing is pretty complete, though in many cases it is feeble and temporary. The most general fence is the uncivilised-looking Virginian rail fence, which consists of rails of wood built up in something like the system on which I have seen wooden fences stored in the old country, and which, to put it mildly, is a great waste of both soil and timber. Drystone dykes and orange hedges enclose some farms. The dwelling-houses generally are excellent, and the stables for horses and shorthorns are good; but for the ordinary cattle scarcely any house accommodation is provided in any part of the State.

The arable area of Kentucky in 1875 was 3,233,143 acres, exclusive of 206,349 acres under tobacco. Indian corn

occupied 1,807,807 acres; wheat, 796,000; rye, 94,017; oats, 295,238; barley, 11,707; potatoes, 16,836; and hay, 211,538. Indian corn averaged 33 bushels per acre, worth 41 cents (1s. 7½d.) per bushel; wheat, 10 bushels, worth 1 dollar and 5 cents (4s. 2½d.); rye, 11 bushels, worth 91 cents (3s. 7½d.); oats, 21 bushels, worth 46 cents (1s. 10d.); barley, 20 bushels, worth 90 cents (3s. 7d.); potatoes, 98 bushels, worth 49 cents (1s. 11½d.); and hay, one ton and a half, worth 14 dollars and 25 cents (£2, 17s.) per ton. The cost of raising these grain crops (exclusive of interest on value of land) may be stated at from 6 to 7 dols. (£1, 4s. to £1, 8s.) per acre, so that in 1875 the profit per acre from Indian corn would have been about 6½ dols., or £1, 6s.; wheat, about 4½ dols., or 18s.; rye, 4 dols., or 16s.; oats, 3½ dols., or 14s.; and barley, 11 or 12 dols., or £2, 4s. or £2, 8s. This year the crop promises better. Wheat especially looks well, and it is expected that it may reach an average yield of 18 or 20 bushels per acre. Winter wheat is sown almost exclusively, and is usually ready for harvesting in the last two weeks of June. It is now all in stook or thrashed and sold. Wheat is now selling at 1 dollar and 30 cents (5s. 2½d.) per bushel, and, of course, this high price hastens farmers with thrashing. The quantity of hay raised in Kentucky is great, but a very large portion of it is used for horses, the rearing of trotting horses being a prominent feature in the rural economy of the State. Timothy and clover are sown largely for hay, and grow well. A very large portion of the blue grass region has never been cultivated at all. It has only been thinned of wood and

bushes, and now it carries rich pastures of blue grass, "red top" (a coarse indigenous variety of grass), and white clover.

The number of cows in Kentucky at the 1st of January 1876 was 244,700, and their estimated value £5, 12s. a-head; and of oxen and other cattle, 389,600, estimated at £4, 4s. a-head. Leaving out the shorthorns, which are so numerous as to demand special notice, the general cattle stock of the State is not one whit better than that of Illinois—that is, the percentage of improved cattle, or cattle containing shorthorn blood, is not larger here than in Illinois—while the common cattle of the two States are very much alike. It might have been thought that, where so many shorthorns have bred for so many years as has been the case in Kentucky, almost every animal would by this time have the stamp of the fashionable shorthorn upon it; but the fact is—and facts must come out (I may refer more fully to it afterwards)—shorthorn-breeding in America has been so conducted that the country generally has derived but little benefit from it in comparison to what it ought to have done.

Fewer steers are fed in Kentucky now than there were several years ago, owing mainly to the increased attention bestowed on shorthorns and horses; but still upwards of 30,000 beef steers leave the blue grass region every year, averaging in weight, alive, from 1400 to 1600 lbs. Of these probably not more than one-third show shorthorn blood, while only about one-tenth would rank among average Scotch crosses or grades. I examined a lot of three-

year-old steers in the blue grass region, the other day, that would barely come up to the average of Scotch crosses of the same age, and three experienced Kentucky farmers, who accompanied me, asserted that they could not find more than 3000 three-year-old steers in the State that would equal or surpass these.

In Bourbon County, in this neighbourhood, a few exceptionally fine lots of high-grade steers are fed off every year, weighing close on 2000 lbs., at three and a half years, and these seem now to be mostly all finding their way into the British markets. Messrs Bedford, Kennedy, & Ferguson, of Paris, Kentucky, represent Mr Eastman of New York here, and every week they send him over 200 head of the choicest steers to be had. This firm has just purchased and sent through Mr Eastman to Messrs Bell & Louis, of Glasgow, five three-year-old shorthorn steers, averaging 2000 lbs. in weight, and bred by Mr F. P. Bedford, Bourbon County. They are meant to represent Kentucky at British fat stock shows.* Mr Buckner, also of Bourbon County, bred high-grade cattle for many years with so much care and liberality that his herd became a strong rival in individual merit to the best shorthorn herds in the State. He fed his cattle almost exclusively on grass in the open field all the year round, and allowed to each animal about four acres of grass for the twelve months. He dispersed the main part of his herd about a year ago, but has retained about a dozen of the best of his cows for a new start. These are, on the

* Two or three of these steers appeared at various British shows, but were left out in the cold!

whole, as fine a lot of grade cows as I have ever seen—by far the best I have seen in America.

Very few steers are fed by their breeders. Stockmen and farmers, who do not breed many, buy up steers in the fall, when about thirty months old, and feed them in open fields (no shedding here) during winter with Indian corn, and perhaps a little hay or corn fodder, and then graze them all summer, and sell them off as beef in the fall. The more enterprising farmers handle only the best lots, and feed them pretty liberally when they have them. They go round in summer and select these choice steers in small lots, sometimes as small as twos and threes, and take delivery of them in the fall. The demand for the better class of steers is unusually active this season, and already they are almost all bought up at 5 and $5\frac{1}{4}$ cents ($2\frac{1}{2}$ d. to $2\frac{5}{8}$ d.) per lb., or about 1 cent per lb. above the buying prices of last year. When bought lean, these finer steers will weigh about 1300 lbs.; and during their feeding year they will take on between 350 and 450 lbs. It is expected that this year a little over 6 (3d.), or probably $6\frac{1}{2}$, cents ($3\frac{1}{4}$ d.) per lb. may be obtained when the steers are fat, which would make the value of a 1700 lbs. steer from 105 to 110 dols., or £21 or £22. The cost of a 1300 lbs. lean steer last fall (at $4\frac{1}{4}$ cents per lb.) was 58 dols., or £11, 12s., which would leave a balance of about 50 dols. (£10) for the year's feeding and profit. During the winter of six months (supposing the steer is a year in his feeder's possession) a steer consumes about 60 bushels of Indian corn, worth about 20 dols. (or £4); and then the grass he eats during the other six

months, if rented, would cost 12 dollars (two dollars a-month), or £2, 8s. Salt and labour would cost other two dollars, and thus the total cost of the year's feeding (minus incidental expenses) amounts to about 34 dollars, or £6, 16s. The profits this year will be larger than for a long time back, and they are not likely to be so large again for some time; that is to say, the buying price is not likely to be so low as it was last year. Farmers generally consider that 40 dollars (£8) a-head would pay well for a year's handling. The better class of Kentucky steers—those referred to in the above calculations—would probably dress from 55 to 60 lbs. of beef to the 100 lbs. of live weight, and thus, with carriage, which would add barely half a cent per lb., the cost of their dressed beef in New York would be from 10½ to 12 cents, or from 4¾d. to 5¾d., per lb.

The demand in Kentucky, as all over America, for improved shorthorn bulls is growing steadily, and greatly increased attention is likely to be bestowed on the rearing of cattle of good quality. Farmers are beginning to realise more than ever the advantages to be derived from the raising of the best possible class of cattle, and they know that it is by using shorthorn bulls, and in that way only, that they can convert their inferior herds into animals of good quality. Kentucky farmers do not think that the cost of beef-production will increase very largely for, at any rate, ten or fifteen years; but they think that by that time there will be ten improved steers for every one at the present day. They think the exportation trade will bring about great improvement in the general cattle stock of the country, by

creating a reliable and profitable outlet for the better quality of beef.

The number of sheep in Kentucky in 1876 was 683,600, and their assessed value barely 11s. a-head. The flocks are mixed and inferior. A number of good Southdowns have been imported within the past few years; but one can hardly help regretting to see such an inferior class of sheep occupying so rich a country.

In the same year hogs numbered over a million and a half, and were valued at £1, 2s. a-head. Berkshires predominate.

In this State farm-servants get 15 dols. a-month (£18 a-half-year) and their board.

CHAPTER XX.

FARMING IN OHIO.

SITUATION OF OHIO.—ORIGINAL CONDITION OF THE STATE.—PERCENTAGE STILL UNDER WOOD.—EXTENT.—POPULATION.—ARABLE AREA.—SOIL.—CLIMATE.—A LADY'S DESCRIPTION OF THE STATE.—CROPS: THEIR YIELD AND VALUE.—VALUE OF LAND.—BETTER CULTIVATION AND MORE DRAINING REQUIRED.—COST OF LABOUR.—NUMBER AND VALUE OF CATTLE.—THE CHARACTERISTICS OF OHIO CATTLE.—PERCENTAGE OF IMPROVED CATTLE.—THE EXPECTED INFLUENCE OF THE DEAD-MEAT TRADE.—COST OF BEEF-PRODUCTION IN OHIO.—WEIGHT OF ITS BEST STEERS.—SHEEP-FARMING.—HOG-RAISING.—PORK-PACKING.

OHIO lies almost due north of the blue grass region of Kentucky; and in many parts of the southern counties the contour and composition of the land closely resemble the general outline and formation of that district. The Maima and Scioto Valleys display lovely scenery and rich agricultural lands. Ohio was originally a richly-wooded State—entirely a wooded State, in fact, except in the north, where there was a little prairie; and though the industry and enterprise of the past fifty or sixty years have robbed a very large area of its shade and shelter, there is still 31 per cent. of the whole area of the State under wood. The extent of the State is 25,576,960 acres, and in 1870 the population was 2,665,012. In 1875 the arable area under grain crops

and hay extended to about 7,400,000 acres, while the natural and sown pastures measured 5,000,000 acres. The soil, on the whole, is very productive. Light-coloured loam, richly impregnated with lime, of fair depth and great fertility, predominates, but there is a considerable area of deep alluvial and lacustrine soils near rivers and streams and on low levels. The climate of Ohio is a little more rigorous than that of Kentucky, but still it is very favourable to farming. As to the ownership and the occupation of the State, columns might be written without giving a better description than a young lady of the Maima Valley gave in a single sentence the other day: "Occasionally you will pass through a vast area, owned by one man, and mainly under grass; and again you will come out on small farms of a hundred, two hundred, or three hundred acres, owned by an industrious class of farmers, who raise Indian corn, a little wheat, and have a few cattle and hogs." American ladies and American children beat the world in their powers of conversation.

In 1875 the extent under Indian corn was 2,753,623 acres; under wheat, 1,842,105; rye, 20,952; oats, 873,161; barley, 43,243; buckwheat, 24,666; potatoes, 123,300; and hay, 1,727,282. Indian corn yielded an average of 34 bushels per acre, worth 44 cents per bushel, or about 15 dollars (or £3) per acre; wheat yielded 9 bushels, worth 109 cents per bushel, or 9 dollars 81 cents (or £1, 19s.) per acre; rye yielded 10 bushels, worth 76 cents per bushel, or 7 dollars 60 cents (or £1, 10s.) per acre; oats yielded 27 bushels, worth 36 cents per bushel, or 9 dollars 72 cents (or

£1, 19s.) per acre; barley yielded 18 bushels, worth 90 cents per bushel, or 16 dollars 20 cents (or £4, 1s.) per acre; buckwheat yielded 15 bushels, worth 82 cents, or 12 dollars 30 cents (or £2, 11s.) per acre; potatoes yielded 103 bushels, worth 36 cents per bushel, or 37 dollars 8 cents (or £7, 8s.) per acre; hay yielded about a ton per acre, worth about 12 dollars, or £2, 8s. An acre of Indian corn in this State, by the time it is in the "shock," or "stook," costs about 6 dollars. Other varieties of grain do not differ greatly.

Land in Ohio is worth on the average from 45 to 65 dollars per acre; and thus the yearly interest for money lying in land would be about 5 dollars per acre. I have seen a few fairly-cultivated farms in this State; but still, in general, the cultivation is very far from perfect, and then the land in many parts has been impoverished and turned from wheat-growing by continued cropping without rest, rotation, or manure. A considerable portion of the Ohio land, too, would be greatly improved by draining; and the more enterprising farmers are beginning to give their attention to this subject.

Labour in Ohio is very little higher than in Scotland. Farm-servants get on the average about 14 or 15 dollars (or from £2, 16s. to £3) per month and their board, or 1 dollar (4s.) a-day without board. A good many farmers now provide their servants with log cottages, costing about 200 dollars, and allow them a cow's grass, firewood, and 1 dollar a-day.

On the 1st of January 1876 Ohio had 809,600 cows,

valued at 32 dollars 65 cents (or £6, 10s.) a-head, and 864,900 oxen and other cattle, valued at 24 dollars 87 cents (or £5, 19s.) a-head. These values are those fixed for assessment; and an experienced Ohio agriculturist assured me that they were too low by close on one-half. The general cattle stock of this State is very similar to that of Kentucky and Illinois, the percentage of shorthorn crosses or grades being about the same in the three States. What that percentage is I can hardly venture to state exactly, but the weight of the evidence obtained puts it below a third of the whole. Nine-tenths of those I have conversed with in Kentucky, Illinois, and Ohio agree in the opinion that probably not more than one-tenth of the whole cattle stock (apart from pure-bred shorthorns) of these three States show the characteristics of the shorthorn more largely than those of the common cattle of the country, or, in other words, are really improved crosses or grades, such as are reared by the majority of farmers in Scotland. Of all the cattle I have seen in Kentucky, Illinois, and Ohio, not more than one-twentieth would rank among the better class of Scotch crosses (which include about two-thirds of the whole cattle stock of that country), while a considerably larger number showed a fair infusion of shorthorn blood, but still displayed big bones, slightly inferior quality, and deficient shapes, especially from the hooks backwards. The demand for shorthorn bulls is much greater now than it has ever been, and most observers predict speedy improvement in the future.

The more experienced of the breeders I met anticipate

great good from the exportation trade, provided it continues, of which they are very hopeful. They think that the new trade will induce farmers to turn their attention to the rearing and feeding of improved instead of inferior cattle, and also bring about a much thriftier and more intelligent system of managing cattle. The system of cattle management at present obtaining in Ohio is almost identical with that in Kentucky and Illinois, which has already been described pretty fully. There is as little housing of cattle here as in those States, and as much waste of food and manure. Ohio farmers say they can breed and feed, or buy and feed, beef steers at a cost, when fat, of 5 cents (or $2\frac{1}{2}$ d.) per lb. of live weight; and that when they can get from $5\frac{1}{2}$ to 6 cents ($2\frac{3}{4}$ d. to 3d.) per lb. on their farms they realise handsome profits. Buyers are now offering $5\frac{1}{2}$ cents freely for average steers, and for extra fine lots 6 cents are being paid. I saw in the possession of Mr R. G. Dun, near London, a very good lot of three and four-year-old high-grade steers, for which 6 cents had been offered (but not accepted) by the agent of an exporting firm. These steers show very fair quality and shapes, but are not ripe, and it can easily be seen by their muscular development and otherwise that they had strolled about in lean condition for the first two years of their existence. Steers for which 6 cents are being paid would weigh from 1500 to 1700 lbs. live weight, and would probably dress from 850 to 1000 lbs. of beef. The carriage to New York, and incidental expenses, would add about half a cent per lb. to the buying price, and thus the cost of the dressed beef in

New York would be from 10 to 11 cents, or from a fraction less than 5d. to 5½d. per lb. Ohio farmers do not anticipate that for at least ten years to come the cost of beef-production will increase to any appreciable extent, but a few expect a slight advance in the cost of transportation to the shipping ports, as railway companies are now carrying beef at rates which leave little or nothing as profit.

The number of sheep in Ohio on the 1st of January 1876 was 4,546,600, and their value about 11s. a-head. As a rule, the quality is inferior. At the same time hogs numbered 1,596,100, and were valued at £1, 12s. a-head. Berkshires and Berkshire crosses predominate, and, on the whole, the class of hogs kept is superior to that of either cattle or sheep. During the winter season of 1875-76 no fewer than 822,935 hogs were packed in Ohio. The average gross weight of these was about 272 lbs.; the average yield of lard about 36 per cent.; the average price per 100 lbs. gross, 7 dollars 14 cents, or £1, 8s. 6d.; and the aggregate cost 37,898,087 dollars, or £7,579,617, 8s. The headquarters of the packing interest in this State is Cincinnati, a thriving city of over 200,000 inhabitants.

CHAPTER XXI.

FARMING IN INDIANA.

ORIGINAL CONDITION OF INDIANA.—ITS WOODS AND SURFACE.—
ABUSE OF TIMBER.—COAL.—EXTENT OF INDIANA.—POPULATION.—
CLIMATE.—SOIL.—ARABLE AREA.—CROPS: THEIR YIELD AND
VALUE.—COST OF GRAIN-PRODUCTION.—COST OF LABOUR.—VALUE
OF LAND.—FORTUNES FROM INCREASE IN VALUE OF LAND.—PROFITS
FROM GRAIN-FARMING FALLING OFF.—THE LAND TIRING OF WHEAT,
—MANURE REQUIRED.—NUMBER AND VALUE OF CATTLE.—THEIR
CHARACTERISTICS AND MANAGEMENT.—WEIGHT AND COST OF
VARIOUS CLASSES OF STEERS.—COST OF FEEDING A STEER FOR TEN
MONTHS.—PROFITS THEREFROM.—THE QUALITY OF INDIANA BEEF.
—THE ADVANTAGES OF HOUSE-FEEDING.—THE EVILS OF OPEN-AIR
FEEDING.—SHEEP AND HOGS IN INDIANA.

WHEN found by the white man, Indiana was a closely-wooded State. In the extreme north, and in two or three counties in the north-west, a little prairie varied the leafy monotony; but by far the greater portion of the State was almost impenetrable, so closely was it coated with trees and bushes of varieties too numerous to mention. White oak, burr oak, hickory, beech, and soft maple and grape-vines predominated. To clear these lands for the plough and the reaper was indeed a difficult task; and though the State has been pretty thickly peopled with an industrious class of farmers for twenty-five or thirty years, it need be no matter for surprise that there is still 39 per cent. of the whole area

of the State under wood. Every successive year admits daylight to large tracts of land that have been hid in darkness for generations; and fears are entertained by some that very soon it will be found that the timber supply of the State has been used too freely. Coal is abundant in the State and near by; and while there is therefore little fear of the inhabitants perishing, it is certainly a mistake to pursue an extravagant waste of valuable timber.

The extent of Indiana is 21,637,760 acres, and in 1870 the population was 1,673,943. Its climate is, on the whole, favourable to the farmer, though sudden changes are occasionally experienced. In 1875, the highest temperature at Indianapolis, the capital of the State, was 92 degrees; the lowest, 18.5 below zero; and the mean annual temperature, 50.46 degrees. The year 1875 was exceptionally wet, the total rainfall having amounted to no less than 54.58 inches. Rain fell on twenty days in July of that year, and did considerable damage to crops. It cannot be said, however, that Indiana, as a rule, suffers greatly either from excessive drought or heavy rains. Other States suffer more. The soil of Indiana is variable. A fertile limy loam of medium depth predominates; while on several flats there is a coating of cold, tenacious clay, and on river bottoms a rich covering of alluvial soil. Tile draining would greatly improve the main portion of the State, and by some of the more enterprising farmers this is being attended to.

According to the Agricultural Department's statistics, which do not always agree with those of the local board, the arable area of this State in 1875 measured 6,247,615

acres, exclusive of 25,500 acres in tobacco. Indian corn is the all-prevailing crop here too. It occupied, in 1875, close on 2,800,000 acres; while wheat had about 1,900,000 acres; rye, 27,500 acres; oats, 620,000 acres; barley, 26,000 acres; buckwheat, 90,000 acres; potatoes, 43,000 acres; and hay, 800,000 acres. Indian corn yielded on the average about 34 bushels per acre, and was worth 39 cents per bushel, or 13.26 dols., or £2, 13s., per acre; wheat yielded 9 bushels, worth 97 cents per bushel, or 8.73 dols., or £1, 15s., per acre; rye yielded 12 bushels, worth 75 cents per bushel, or 9 dols., or £1, 16s., per acre; oats yielded 29 bushels, worth 33 cents per bushel, or 9.57 dols., or £1, 18s., per acre; barley yielded 17 bushels per acre, worth 88 cents per bushel, or 15.96 dols., or close on £4, per acre; buckwheat yielded 19 bushels, worth 95 cents per bushel, or 18.05 dols., or £3, 12s., per acre; potatoes yielded 104 bushels, worth 36 cents per bushel, or 37.44 dols., or £7, 12s., per acre; hay yielded a ton and a third, and was worth about 11.50 dols., or £2, 6s., per ton.

The ploughing, harrowing, working, and seeding of an acre of Indian corn in Indiana costs from 2.50 dols. to 3 dols., or from 10s. to 12s.; and the cultivating, four times, about the same—in all, from 5 dols. to 6 dols., or from £1 to £1, 4s., per acre. A good man and a pair of horses, with a little assistance at seed-time and harvest, can take charge of about 30 acres of Indian corn, and be employed constantly only about three months of the year. Farm-servants get above 15 dols., or £3, per month and their board, or about a dollar a-day without board. They are usually paid

by the month, and the majority of them are frequently on the move. Farmers complain that, as a rule, they are neither trustworthy nor industrious.

Land in this State is worth from 40 to 60 dols. per acre, the average value being probably between 45 and 50 dols. A considerable extent is let to tenants at from 4 to 5 dols. per acre per annum; and in calculating his profits, the farmer who cultivates his own land (if he is a calculating man; it is to be regretted that all farmers are not) usually charges about 5 dols. per acre as interest on the money invested in the land. The majority of those who have been settled here for fifteen, twenty, or thirty years are now in very comfortable circumstances. To put it as an American would, they have made "piles" of money; but their wealth has come mainly from the increase in the value of the land. Their profits from grain-farming have never been very large, and since 1873 they have been growing "fine by degrees, and beautifully less." Wheat has refused to yield the handsome returns it once did; it cries for manure, and, of course, American farmers can see no good in handling such a filthy commodity. It sounds strangely to a Scotsman to hear a farmer assert that his land, for so many years famed for wheat, will no longer produce paying crops of this variety, and in the next breath complain that he does not know where to put his farmyard manure to be out of the way—all the hollows around the sheds have already been levelled up. A very few in this State are beginning to spread manure on their grass land, and find its influence wonderful. On Captain Meredith's farm, close to Cambridge City, I

examined a hay-field which had been liberally manured, and which carried at least two tons per acre, and yet the soil was very thin and shingly.

At the 1st of January 1876 Indiana had 434,900 cows, valued at 27.40 dols., or £5, 11s. 6d., a-head; and 772,300 oxen and other cattle, valued at 19.65 dols., or £3, 18s. 6d., a-head. The general cattle stock of this State is very similar to that of Ohio, Illinois, and Kentucky. The percentage that show a little infusion of shorthorn blood is nearly the same in all these States,—probably, if there is any difference, Illinois has the best of it,—and neither in Ohio nor Indiana are there quite so many choice lots as in their prairie neighbour on the west. There is less Indian corn feeding in Indiana than in Illinois; grass and hay are more relied upon here, and what corn is given to cattle is invariably given in the “shock” (or “stook”), or just as it grew, and spread out in the open field. Here, as in these other States referred to, cattle are bred by one class and fed by another, and “shipped” to the market by a third. One class of farmers, usually the smaller farmers, breed the steers and rear them in lean condition—carry them through in any way they can—till they are about thirty months old, and then the feeders—usually the larger farmers or “stockmen”—buy them up and feed them on “shock” corn, and probably a little hay and salt, for about five months from the 1st of December, and on grass and salt for other five months, when they are sold as beef-cattle to cattle-dealers. On an average, the feeders pay from $3\frac{1}{4}$ to 4 cents ($1\frac{1}{4}$ d. to 2d.) per lb. of live weight, and sell at from 5 to $5\frac{1}{2}$ cents, or from $2\frac{1}{2}$ d. to

2¾d., per lb. The better lots bring 6 cents, but the buying price for these might be 4½ cents. When bought in at thirty months old these steers would average about 1200 lbs. gross, and when sold off after ten months' feeding would reach from 1500 to 1700 lbs. at home, or about 80 or 100 less by the time they would reach New York. During the five months they are fed on Indian corn they consume about 60 bushels, which must be charged to them at about 35 cents (1s. 5d.) per bushel; the grass they eat during the other five months, if rented, would cost 1.50 dols. (6s.) per month—in all for the ten months, 28.50 dols., or £5, 2s. It is calculated that the profit realised from the hogs that run with the cattle clears the cost of labour and salt and incidental expenses. The buying price of a 1200-lbs. steer, at 4 cents per lb., would be 48 dols., or £9, 12s.; the selling price of a 1600-lbs. steer, at 5½ cents per lb., 88 dols., or £17, 4s., which, after deducting the cost of the ten months' keep, would leave a profit of 11.50 dols., or £2, 6d., a-head. This profit is probably not realised always by every feeder, but still these calculations are based on figures supplied to me by a number of gentlemen in different parts of the State, who together feed every year over 2500 steers. These gentlemen do not anticipate any appreciable increase in the cost of beef-production for at least ten years to come, but some of them do expect a slight advance in the rates of conveyance to seaports. The rate to New York at present is about 105 dols., or £21, a car, which will carry about 16 steers, and their feeding and watering by the way add about 7 dols. more, which makes the cost of transit in all about 7

dols. a-head (£1, 8s.), or a little less than half a cent per lb. of live weight. Those who ship large numbers, I believe, get a considerable reduction in the rates. The better lots of steers will dress from 55 to 60 lbs., or an average of very close on 58 lbs. of beef to every 100 lbs. of live weight, or from 850 to 1000 lbs. a-head; and thus the better class of Indiana beef in New York (leaving hide and tallow to meet expenses and profits there) would cost from 10 to 11 cents, or from 5d. to 5½d., per lb.

As to the quality of this better class of American beef, compared with British beef, there is, of course, a difference of opinion. I have had a careful inspection of a very large number of feeding steers, rising four years old, in Indiana, and almost every farmer that I met agreed in the opinion that in these I had seen a very fair sample of the better class of steers fed in this State. Mr A. M. Lockridge and his three sons, Mr R. Z. Lockridge, and Mr W. Bridges, all of Putnam County, feed annually about 1500 of the better class of steers to be got in the neighbourhood, and of these a large number were inspected. In regard to weight and general outline of frame, these steers were, on the whole, pretty good; but in respect to quality, fineness of bone, and maturity, they were far behind the Scotch average. Some carried a very fair coating of moderately well laid on beef, but the great majority showed too great a development of muscle, no doubt caused mainly by the amount of travelling they had accomplished in gathering their food during their two early years of spare feeding. In general characteristics, probably not more than one out of every five would rank

with the average of Scotch steers of the same age. Of all the steers seen, only a very few had ever been inside a shed; but most of their owners admitted that it would be highly profitable to feed in sheds instead of on the open field.

Mr R. Z. Lockridge made an interesting experiment last winter, which should assist in making it plain that house-feeding would in every respect be highly preferable to open-air-feeding. He fed 100 steers in sheds for three months from the 1st of February, and 65 of a similar class on a grass-field. When the experiment began the two lots averaged about 1400 lbs. in gross weight, and at the end of the three months the house-fed steers weighed about 1500 lbs., and the others only 1430 lbs.; and the 65 consumed about the same quantity of Indian corn as the 100 steers, whose daily portion was one-sixth of a bushel. More hay, of course, was consumed by those inside than those outside; but this extra expense, and the labour too, were fully covered by the value of the manure which the house-fed steers had made. Mr Lockridge intends continuing the system.

Indiana has about 1,250,000 sheep, worth 11s. a-head; and 2,136,000 hogs, valued at 7.70 dols., or 31s., a-head. Berkshire hogs predominate.

CHAPTER XXII.

MICHIGAN AND WISCONSIN.

EXTENT. — TIMBER. — CLIMATE. — SNOW AND RAINFALL. — SOIL. — ARABLE AREA. — CROPS: THEIR YIELD AND VALUE. — NO ROTATION. — NO MANURING. — CONSTANT CROPPING. — BAD CULTIVATION. — FAILURE OF WHEAT. — NUMBER AND VALUE OF CATTLE. — THEIR CHARACTERISTICS AND MANAGEMENT. — THOUSANDS OF CALVES SLAUGHTERED AND FED TO SWINE. — WEIGHT OF MICHIGAN STEERS. — IMPROVEMENT IN CATTLE MANAGEMENT, AND GROWING DESIRE FOR WELL-BRED BULLS. — TEN SHORTHORN BULLS NOW USED FOR EVERY ONE FIVE YEARS AGO. — SHEEP-FARMING. — COTSWOLD AND HAMPSHIRE TUPS IN MICHIGAN. — HOG-RAISING. — A CELEBRATED MICHIGAN PIGGERY. — VALUE OF LAND. — LABOURERS' WAGES.

MICHIGAN and Wisconsin and the other Northern States are more noted for their production of wheat than for the raising of beef; but still they are all meat-exporters to a certain extent. The two States named are large. Michigan extends to 35,995,520 acres, and Wisconsin to 34,511,360 acres; and though many parts have been pretty well settled for over thirty years, both have still a great area to fill up. Originally, or rather when opened up for settlements, they were very heavily wooded, and the clearing process has been (and is still) very expensive and laborious. Even yet there is 40 per cent. of the whole area of Michigan under wood, and 29 per cent. of that of Wisconsin. The white pine forests of Michigan are said to be the most valuable in

the United States, and in some portions it carries a very rich cover of black walnut. The woods of Wisconsin resemble those of Indiana and Illinois, but have less black walnut and more bass-wood. The climate of these two States corresponds in the main, and is moderately favourable for farming. The winters are usually long and severe, and cattle are generally (or ought to be) fed by the hand for close on six months of the year—that is, they cannot gather their food from the grass-fields and wild pastures much more than one half of the year. The rainfall in Michigan in 1875 (according to the observations of Professor Kidzie, of the Michigan Agricultural College) was about 28 inches; the mean temperature in the open air, 43.06; the mean maximum temperature, 54.60; the mean minimum temperature, 29.58; the range of the temperature during the year, 127 deg.; and the fall of snow, 63½ inches. The frost frequently becomes very intense; but the heavy snow-falls protect the winter wheat, for which Michigan bears a good name. A sharp, fertile, loamy soil predominates in both these States, and, on the whole, it must be called good farming land. It lacks the “body” and depth of the black soil of Illinois, but still it is in the main kindly and productive. There are considerable areas in both States of very light land; but, on the other hand, there is a large extent of deep rich soil. The “burr oak” soils on the western slopes of Michigan are exceptionally productive if well cleared and well cultivated.

The arable area of Michigan in 1875 was very close on 3,500,000 acres; Indian corn occupying a little over

710,000 acres; wheat, 1,250,000 acres; rye, 19,000; oats, 329,000; barley, 47,000; buckwheat, 34,000; potatoes, 85,000; and hay, 1,016,000 acres. In the same year Wisconsin had a little over 4,500,000 acres under cultivation and hay; Indian corn covering 724,000 acres; wheat, 1,800,000; rye, 81,000; oats, 680,000; barley, 71,000; buckwheat, 21,000; potatoes, 72,000; and hay, 1,051,851 acres. These States are a little too far north for Indian corn, but still the yield in 1875 averaged in Michigan 33 bushels, and in Wisconsin 21 bushels, per acre; the market price in the former State having been 61 cents (2s. 5½d.), and in the latter 54 cents (2s. 2d.), per bushel. In the same year wheat yielded, in Michigan, 13 bushels per acre, worth 1 dollar and 15 cents (4s. 7¼d.) per bushel; and in Wisconsin 14 bushels, worth 91 cents (3s. 7½d.) per bushel.

These average yields are occasionally exceeded, but more frequently, within the past few years at least, they have not been reached. And indeed there need be no wonder at this, for rotation and manuring are unknown, and the main portion of the land has been greatly reduced in condition by continued cropping. Wheat has been grown almost every consecutive year on the same land for ten or fifteen or more years; with a few exceptions, the soil has never received an ounce of manure of any kind; and, as a rule, it has been very imperfectly cultivated. A year's rest or a little farmyard manure are occasionally allowed to thin soil, but these are exceptions to the general rule. Wheat likes both well-rested (or well-manured) and well-cultivated land,

and he who can afford it neither need expect but small favour from it, no matter in what State or nation he scatters the seed. In Wisconsin especially the falling off in the yield has been very marked—at least in numerous cases—and flax and other crops are being tried on the run-out land. The small returns for wheat during the past few years have been felt keenly by all classes of the community, and it is fortunate that this year the crop is turning out exceedingly well. It is now all harvested, and on several farms which I visited in Michigan the yield averaged about 28 or 30 bushels per acre. It is confidently expected that in this State generally the yield will exceed the average of the past few years by from 5 to 10 bushels per acre. The quality is good, and more than the average percentage of the yield will reach the standard weight of 60 lbs. per bushel. Most farmers, and tradesmen too, are jubilant over the large yield, which, every one admits, was greatly needed.

In Wisconsin, in 1875, rye yielded 16 bushels per acre, worth 68 cents (2s. 8¾d.) per bushel; oats, 38 bushels, worth 33 cents (1s. 4d.) per bushel; barley, 31 bushels, worth 92 cents (3s. 8d.) per bushel; buckwheat, 13 bushels, worth 79 cents (3s. 2d.) per bushel; potatoes, 105 bushels, worth 29 cents (1s. 2d.) per bushel; and hay, scarcely one ton and a half per acre, worth 9 dollars and a half (£1, 18s.) per ton. In Michigan, in the same year, rye yielded 14 bushels, worth 86 cents, or 3s. 5¼d.; oats, 35 bushels, worth 43 cents, or 1s. 9¼d.; barley, 20 bushels, worth 92 cents, or 3s. 8d.; buckwheat, 18 bushels, worth 69 cents, or 2s. 9d.; potatoes, 125 bushels, worth 31 cents,

or 1s. 3d.; and hay, 1 ton and one-fifth, worth 14½ dollars (£2, 18s.) per ton.

It is but just to mention that, in general, the land in Michigan displays slightly better cultivation (though it is far from what it should be) than I have been accustomed to see in my travels through the great West; and judging by the number of thoroughly-educated agriculturists that the State's Agricultural College—one of the best institutions of the kind in the country—sends out every year, one can have little doubt that the prevailing system of farming in Michigan ten years hence will be far advanced beyond what it is now.

On the 1st of January 1876 Michigan had 361,100 cows, valued at 33 dollars and 70 cents, or £6, 15s., a-head; and 410,000 oxen and other cattle, valued at 26 dollars and 35 cents, or about £5, 5s., a-head. At the same time Wisconsin had 474,000 cows, worth 26 dollars and 75 cents, or £5, 8s., a-head; and 448,900 steers and other cattle, valued at 20 dollars and 39 cents, or about £4, 1s. 6d., a-head. The cattle stock of the two States is very much alike, and probably nine-tenths of the whole are "common Americans," such as were seen in Iowa and other States, and previously described pretty fully. They seem rather lighter in weight than the Iowa cattle, and are quite as inferior in quality. There is more house-shelter for cattle in these States than in Iowa, but less systematic feeding, and considerably fewer improved cattle. Even the strongest exponents of these States admit that only a very small number of steers suitable for the New York or Chicago

slaughter-houses are raised in them; and they as frankly confess that the general system of cattle management prevailing here is very far from what it ought to be, or what they hope, in the course of ten or fifteen years, it will be. Thousands of calves are slaughtered every year when a day or two old, "just to get them out of their way" (to quote from a Michigan agriculturist), their carcasses being consigned to the hogs and their hides to the tanner, who pays from 20 to 35 cents ($9\frac{3}{4}$ d. to 1s. 5d.) for each. Tradesmen and other residents in villages and towns who own cows frequently make free gifts of their calves. A good many Michigan steers are disposed of when about thirty months old, when they weigh from 800 to 1000 lbs. live weight; but by far the majority of both States are retained a year longer, and sold mainly as beef when three and a half years old, when they weigh on the average from 1100 to 1200 lbs. live weight. They are fattened mostly on Indian corn, of which a liberal allowance is given the last winter. The Wisconsin steers make their way in the hands of stockmen or drovers chiefly to Chicago, and the Michigan steers to Buffalo, at which points the better-fed animals are selected for slaughter, and the leaner lots picked up for further feeding. When the Michigan steers do not find buyers in Buffalo they are forwarded to New York. Unsatisfactory as the system of cattle management still is, it has improved considerably during the past three or four years, while a desire for a better class of stock has been spreading all round. Scarcity of capital will make improvement slow; but it has got a commencement, and bids fair to go on at a

gradually increasing pace. There are now several good shorthorn herds in these States, and, according to a trustworthy authority, for every shorthorn bull used to common cows five years ago ten are used at the present day.

The number of sheep in Michigan on the 1st of January 1876 was 3,450,600, valued at 10s. 6d. a-head; and in Wisconsin, 1,162,800, valued at 11s. a-head. Merino grades of rather inferior quality predominate; but of late years considerable efforts have been made to improve the breed by introducing improved tups chiefly of the merino breed. A very few Cotswold and Hampshire tups have been imported, with the view of improving the quality of mutton, and there is great need for further enterprise in this direction. Only a comparatively small quantity of mutton is prepared in these States, wool being the main product. A "clip" of 7 lbs. a-head is claimed for some of the finer Michigan flocks; but the general average for both States would not reach 4 lbs. a-head. Sheep have to be fed with hay and straw in winter, and sometimes also a little Indian corn.

In Michigan hogs numbered at the same time 459,700, worth £1, 12s. a-head, and in Wisconsin 540,700, valued at about £1, 10s. The prevailing breeds are Berkshire, Poland-China, Essex, and Suffolk; and, on the whole, the stock of pigs is decidedly superior to that of either cattle or sheep. I visited the piggery of Mr William Smith, of Detroit, the other day, and found in his possession a lot of as fine breeding pigs as I have ever seen in the ownership of one man. He breeds Suffolk, Essex, and Berkshire pigs,

and has been using the best imported blood. He bestows great care and liberality on his herd, and has brought it to a high state of perfection. Both the cattle and sheep breeders of America would do well to take a lesson from Mr Smith.

Cleared and improved land, with moderate houses, in Michigan, is selling at from 35 to 60 dollars per acre. Farm-servants get from 15 to 18 dollars (£3 to £3, 12s.) per month and their board. Good labour is scarce.

CHAPTER XXIII.

THE LIVE-STOCK TRADE OF CHICAGO.

CHICAGO ONE OF THE LIVELIEST CITIES IN THE WORLD.—ITS TRADE IN AGRICULTURAL PRODUCE.—RECEIPTS OF GRAIN, HIDES, WOOL, AND BUTTER.—CHICAGO LIVE-STOCK YARDS.—THEIR EXTENT AND ARRANGEMENT.—FAIRBANK'S SCALES.—THE WORK THEY ACCOMPLISH.—CAPACITY OF THE YARDS.—RECEIPTS OF CATTLE, SHEEP, AND HOGS IN 1876.—THE TOTAL VALUE OF STOCK RECEIVED INTO THE YARDS IN 1876.—THE TOTAL VALUE OF THE RECEIPTS SINCE 1872.—AVERAGE WEIGHTS AND PRICES OF CATTLE RECEIVED IN 1876.—NUMBER OF EACH CLASS.—THE EXPORTS AND CITY CONSUMPT.—CHARGES FOR ADMISSION OF STOCK INTO THE YARDS.—SALESMEN'S COMMISSIONS.—MOUNTED SALESMEN.—A VIEW OF THE YARDS FROM A HOUSE-TOP.—A SCENE OF GREAT ACTIVITY AND STIR.—THE CHARACTER OF THE CATTLE ON OFFER.—CURRENT PRICES.—SELECTIONS FOR BRITISH MARKETS.—BEEF PACKERIES IN CHICAGO.—PORK PACKERIES.—HOW THE "PORKERS" GET THEIR QUIETUS.—THREE PIGS KILLED AND DRESSED PER MINUTE !

CHICAGO is one of the most lively cities in the world, one of the principal railway centres on the American Continent, and has a very extensive traffic in agricultural produce. Its grain trade and its live-stock trade are about equally large, and growing at about an equal pace. But in the meantime the latter is of most interest to British farmers, and therefore this chapter shall be confined mainly to it.

It may be mentioned in a sentence that the annual receipt of wheat in Chicago is close on 30,000,000 bushels; of flour,

slightly over 2,500,000 barrels; of Indian corn, 35,000,000 bushels; of oats, 13,000,000 bushels; of barley, 3,200,000 bushels; and of rye, close on 1,000,000 bushels. Considerably over 50,000,000 pounds of hides pass through the hide-market of the city every year; about 50,000,000 pounds of wool through the wool-market; and from 22,000,000 to 28,000,000 pounds of butter are received.

Americans assert that the live-stock yards of Chicago are the largest of the kind in the world, and probably they are not far wrong in their boast. These yards are situated in the south-west suburbs of the city, and are owned and conducted by an organisation called the Union Stockyards Company. Including roadways, they extend to no less than 370 acres, 200 of which are occupied by yards, railway tracks, roads, &c. There are 475 cattle yards, all open, 675 covered hog and sheep pens, 375 chutes and pens, 15 Indian corn cribs, and 10 hay barns. In connection with the yards the Company owns and works about twenty-four miles of railway, has laid several miles of macadamised streets and alleys, and drained the whole by a complete network of underground sewers. The yards were opened at the close of 1865; ever since alterations and improvements have been going on; and now the arrangements for the comfort of the animals and the carrying on of business seem very satisfactory.

Stock are almost all sold by weight here, and in the weighing process no fewer than thirteen of Fairbank's fifty-ton stock scales are constantly in use. Over 5,500,000 animals are weighed on these scales every year; and it has

been calculated that an error in the scale of one ounce per 100 lbs. would cause a loss to either the buyers or the sellers of a little over 82,000 dollars, or £16,400, during the twelve months.

The yards can accommodate at one time 20,000 cattle, 100,000 hogs, 15,000 sheep, and 1000 horses—in all, 136,000 animals; and occasionally there is indeed very little “spare cloth.” The total number of cattle received into the yards during 1876 was 1,096,745; the number of hogs, 4,190,006; of sheep, 364,095; and of horses, 8159. About 5500 cattle, 730 hogs, and 600 sheep were driven into the yards on foot, all the others having been brought in on one or other of the thirteen different railways that enter the yards. The largest number of cattle were received in the months of March, April, May, and September—June, August, and November following closely. The greatest number of hogs were received in January, November, and December; of sheep, in January, February, March, and December; and of horses, in March, April, May, and September. The receipts of cattle were smallest in January, February, and December. The largest daily receipt of cattle numbered (on 11th May) 6652; of hogs (on 19th November), 48,775; of sheep (on 23d March), 6051; and of horses (on 5th October), 460. The largest weekly receipt of cattle (in the second week of May) numbered 28,374.

The total value of the live stock received into the yards last year (1876) was no less than 111,185,660 dollars, or about £22,237,132; the value in 1872 having been 87,500,000 dollars, or £17,500,000; increase, 23,685,660

dollars, or £4,737,130. The total value of the live stock received in the yards during the five years from 1872 to 1876, both inclusive, reached the enormous sum of 522,589,903 dollars, or about £104,517,980.

Figures proverbially make dry reading, but a few more will be offered to indicate the kind, and weight, and character of the cattle that pass through this immense establishment, and the average prices obtained for them. In 1875, 36,348 native steers (that is, common American steers, apart from Texas, and Colorado, and Cherokee cattle), weighing between 700 and 890 lbs. live weight, sold at an average of 3.55 dols., or about 14s. 2d., per 100 lbs. live weight; 44,124 native steers, weighing between 900 and 990 lbs., at 4.14 dols., or about 16s. 6½d., per 100 lbs.; 75,809 native steers, weighing between 1000 and 1090 lbs., at 4.71 dols., or about 18s. 10d., per 100 lbs.; 131,574 native steers, weighing between 1100 and 1190 lbs., at 5.11 dols., or about £1, os. 5d., per 100 lbs.; 152,487 native steers, weighing between 1200 and 1290 lbs., at 5.51 dols., or about £1, 2s., per 100 lbs.; 105,477 native steers, weighing between 1300 and 1390 lbs., at 5.91 dols., or about £1, 3s. 8d., per 100 lbs.; 38,473 native steers, weighing between 1400 and 1490 lbs., at 6.34 dols., or about £1, 5s. 4d., per 100 lbs.; and 11,825 native steers, weighing over 1500 lbs., at 6.51 dols., or about £1, 6s., per 100 lbs. To put it more plainly, of the 596,109 native steers sold in the yards in 1875, 287,847 were below 1200 lbs. in live weight, and brought from about 3½ cents to 5 cents (1¾d. to 2½d.) per lb. of live weight; while 308,262

weighed over 1200 lbs. live weight, and sold at from about $5\frac{1}{2}$ cents to $6\frac{1}{2}$ cents ($2\frac{3}{4}$ d. to $3\frac{1}{4}$ d.) per lb. of live weight. On the average, these latter three hundred thousand odd steers would probably dress from 52 lbs. to 58 lbs of beef to every 100 lbs. of live weight.

The number of calves sold in the yards in 1875 was 7759; of native cows and heifers, 68,147; and of Texas, Cherokee, and Colorado cattle, 196,242; the average price obtained for the latter having been about 3.70 dols., or about 14s. 10d., per 100 lbs. of live weight. The trade with these Texans and Cherokees does not seem to be on the increase, for the number sold in the yards in 1874 was 44,262 more than in 1875.

Of the 920,843 "beef cattle" received in the yards in 1875, 695,434 were "shipped" either by train or steamer on the lake (mainly by train) to Eastern American and other markets, and 225,409 bought up and slaughtered by the Chicago packers and butchers. To illustrate the growth of the cattle trade in Chicago, it may be stated that the number of beef cattle received in the city in 1870 was 532,964, of which 391,709 were "shipped," and 141,255 slaughtered for the city packers and butchers; in 1865, 333,362, of which 301,637 were "shipped," and 90,596 slaughtered for the city packers and butchers; and in 1858, 118,155, of which 44,149 were "shipped," and 74,006 slaughtered for the city packers and butchers. Increase since 1858, 802,688.

The company's charges for the admission of stock are 25 cents (1s.) a-head for cattle and horses, and 8 cents (4d.)

a-head for hogs and sheep; and food—hay and Indian corn—is supplied by the company at certain fixed prices—"monopoly" prices, according to a discontented stockman. Water is free and sure. No fewer than 100 salesmen firms are doing business in the yards, and by them all the stock are sold—their commission charges being about 50 cents (2s.) a-head for cattle, and 8 dols. (£1, 12s.) per car of hogs, numbering about 60 head. These salesmen take charge of the stock immediately on their arriving in the yards, and feed them and tend them in every way till delivered to the buyer. An American stock-salesman is a lively fellow, slightly different from the cool, calculating, typical Scot, who creeps up to a fleshy farmer (as truly Scotch), and mutters, "Fat are ye seekin' for yer beasties, man?" The representative Chicago salesman is mounted, and moves around at a rapid pace: one moment here, then gone—who can tell where?

A look-out from the top of the company's offices (the Exchange) the other day displayed a strange panoramic view. What a scene of life and activity! It was the heat of the salesman's battle, and he was charging fiercely. Cattle bellowed, hogs squealed, and men roared, sending up a medley sound more curious than pleasing. The receipts on that day numbered close on 4500 cattle, 14,000 hogs, and 6000 sheep; but in reality there were within view at one glance (from the house-top) more than 8000 cattle, for the three previous days had not cleared away more than the half of their receipts. "Now, sir," remarked a companion on the house-top, "you see a fine lot of American cattle." That may have been so, but it can hardly be said that they seemed a

lot of fine cattle. Yellow hides and long horns were too plentiful. I smelt Texas and the Territories, and found, on descending, that I had scented correctly. The arrivals of Texans have been exceptionally large for a few weeks past ; while the receipts of good native steers have been about the average. There were a few lots of very fairly-fed three and four-year-old steers on offer, and were selling at from 6 to $6\frac{1}{2}$ cents (or 3d. to $3\frac{1}{4}$ d.) per lb. of live weight. But at least nine-tenths of the whole would have been considered by a British farmer as too lean for killing, and yet the large majority were destined for slaughter. I did not see a single lot that would have ranked among the average of Scotch three-year-old crosses ; and probably my companion was right in saying that, at this season of the year, one would not find a fair representation of American cattle in the Chicago stock-yards, or any other stock-yards in the country. The very finest lots were being looked after by Mr Nelson Morris, who is supposed to be the most extensive cattle-dealer in the world, and who sends from 300 to 500 of the best steers from Chicago to Philadelphia every week for slaughter there, for exportation to the British markets. He buys at from $5\frac{3}{4}$ to $6\frac{3}{4}$ cents (from a little over $2\frac{3}{4}$ d. to a little over $3\frac{1}{4}$ d.) per lb. of live weight in Chicago ; and the carriage from Chicago to Philadelphia adds close on half a cent more. The steers he buys usually weigh alive from 1500 to 1600 lbs., and would probably dress, on the average, about 55 lbs. of beef to the 100 lbs. of gross weight. A few of the very best might dress 60 lbs.

About 250,000 beef cattle are now slaughtered in Chicago every year, and more than three-fourths of these are handled by two packing firms—viz., the Wilson Packing Company, and the Messrs Libby, M'Neill, & Libby. The Wilson Packing Company devote their attention exclusively to the canning of beef, and for this purpose they slaughter every year between 15,000 and 16,000 cattle. The Messrs Libby, M'Neill, & Libby slaughter over 180,000 cattle during the twelve months; and at the present time they kill and pack 600 cattle per day—their daily number during the three winter months being 1000 head. About one-half of their beef is put up in cans, and the other half in barrels and tierces; and of the canned and cooked meat three-fourths go to Britain. The Wilson Packing Company send about one-half of their beef to British towns. The Messrs Libby, M'Neill, & Libby have just now 400 men, boys, and girls in their employment. The cattle used in these packeries are picked up in the stock-yards, and do not average over 550 lbs. live weight. They are the smaller and leaner lots, and probably include what a Texan would call a few "pretty tidy old cows." Beef packeries, of course, are secret institutions, and regarding the *modus operandi* in the interior very little could be learned.

Large as these beef-packing establishments are, the pork packeries throw them far into the shade. In connection with the stock-yards there are, in all, sixteen pork-packing establishments, whose total capacity is equal to about 50,000 hogs per day, if worked to the fullest possible extent. They are worked fully only in the winter months; but still the

total number of hogs packed in all these houses during 1876 was probably very close on 2,500,000, which, at the average weight of the hogs received into the yards in 1876 (245 lbs.), would make the gross live weight consigned to the packeries no less than 612,500,000 lbs. I was kindly permitted to glance through one of these establishments, that of the Messrs Fowler Brothers, who, with an active force of 400 men and boys, slaughter and cure and pack 2000 hogs per day—the daily allotment during the winter months being 3000. The porkers are driven, in small lots, into a small pen in one end of the establishment, where an active youth slips a chain on to a hind leg. The squealing creature is then hoisted, by steam, about four feet from the ground, and run along a passage by a pulley on an elevated rail. A bare-armed butcher with glancing blade stands in the passage and gives the hog its quietus as it passes, and at the end of the passage it hangs for a few seconds till it gets rid of the blood. It is then tossed into a tank of boiling water, and in a few seconds more laid out on the dissecting-table, where it is handled rather roughly by a band of half-naked, furious-looking fellows, who scrape it, cut it up, and clean it, and send the beautiful, while half-divided, carcase away into the cooling-room, hanging from an elevated rail as before. I watched the process for but five short minutes, and yet in that little while fifteen live, squealing porkers were transformed into still, snow-white carcasses, cooling in the ice-house—three pigs per minute! The pork packeries form one of the most interesting and most wonderful sights to be seen in this great country.

It is worthy of mention that the live-stock trade of Chicago, including the packeries, affords employment for nearly one-fifth of the entire working population of the city. The population of Chicago is stated at 500,000.

CHAPTER XXIV.

SHORTHORN-BREEDING IN AMERICA—INTRODUCTION OF THE BREED.

THE INFLUENCE OF SHORTHORN-BREEDING ON THE BEEF-SUPPLY OF AMERICA.—THE INTRODUCTION OF SHORTHORNS INTO AMERICA.—THE IMPORTATIONS OF 1783—OF 1785 AND 1797.—THE "PATTON" STOCK.—THE IMPORTATIONS OF 1791 AND 1796—OF 1815—OF 1822.—THE "SEVENTEENS."—THE IMPORTATIONS OF 1818—OF 1820—OF 1823—OF 1821—BETWEEN 1822 AND 1830—OF 1824 AND 1825.—THE GREAT FOUNDATION OF SHORTHORN-BREEDING IN AMERICA.—THE OHIO IMPORTATIONS OF 1834-35-36.—OTHER IMPORTATIONS.—THE NUMBER IMPORTED FROM 1824 TO 1840.—RECENT IMPORTATIONS.

THE influence which shorthorn-breeding in the United States has upon the production of beef in that country is so important that the subject demands lengthy notice here. First, then, a few sentences may be given regarding the introduction of this valuable breed of cattle into the Great West.

The first importation we read of was made in 1783, when a few animals of the shorthorn breed were introduced into Virginia from England, some of these being of what was known as the "milk" breed, and some of the "beef" breed. The latter were longhorned cattle, coarse and rough, coming slowly to maturity, and fattening badly until full grown. The "milk" breed were shorthorned cattle

coming earlier to maturity and fattening more kindly, and also affording large quantities of milk. It is recorded that it was not uncommon for cows of this breed to give thirty-two pints of milk per day. Between 1785 and 1797 the Messrs Patton, of Kentucky, took a few animals, descended in part from these "milk" and "beef" breeds, to Kentucky, one of these gentlemen importing thence from Virginia, in the latter year, a pure-bred bull and cow—"Mars" and "Venus"—of the "milk" breed. The progeny of "Venus" was only two bull calves; and thus the pure shorthorns of this importation to Kentucky did not descend beyond one generation. "Mars," however, proved himself a most valuable sire; and, in conjunction with other improved "milk" and "beef" bulls introduced into Kentucky, left a race of animals that can be recognised to this day. They are known as the "Patton" stock.

Mr Allan, editor of the *American Shorthorn Herd-Book*, whose acquaintance with stock matters in America is very minute and extensive, and from whose writings these preliminary notes are mainly gleaned, states that a Mr Heaton, who emigrated from England to New York in 1775, went back to his native country in 1791, and brought over to his new home several shorthorns from Mr George Culley, of Grindon, Northumberland. In 1796 Mr Heaton augmented his little American herd by a bull and a cow from Mr Charles Colling. These cattle, it is said, were bred in their purity so long as their spirited importer lived; but after his death they were scattered throughout the neighbourhood. In 1815, or the following year, Mr Cox, also an English-

man, imported a shorthorn bull and two heifers from England to Ranseller County, New York. These cattle and their progeny ultimately passed into the hands of Mr Matthew Bullock, of Bethlehem, Albany County, New York, who bred them for many years, and who, in 1822, imported, in connection with Mr Wayne, two famous shorthorn bulls—"Comet," or "Cornet," and "Nelson,"—which stamped the "Bullock" stock, as they were called, with great size and many other excellent qualities. The fame of this stock spread rapidly, and their progeny were sought after by farmers from a great distance.

Then came that wonderful importation called the "Seventeens," so named because of their having been imported in 1817. In that year Mr Lewis Saunders, a wealthy merchant of Lexington, Kentucky, obtained through Mr Etches, of Liverpool—"a capital judge of shorthorns"—twelve of the best cattle that could be purchased in England. Six of these were shorthorns or Teeswaters, and, at any rate, some of the others were longhorns. In the following year (1818) Mr Prentice imported two shorthorn bulls from England, which have also been included among the "Seventeens." The names of Mr Saunders's importation were,—*bulls*—"San Martin," "Tecumseh," and "Comet," *cows*—"Mrs Motte," "The Teeswater Cow," and "The Durham Cow." The bulls imported by Mr Prentice were named "Prince Regent" and "John Bull," and, like the six shorthorns that immediately preceded them, are said to have been remarkably fine animals. "These cattle," we are told, "were bred pure until other shorthorns of later importations were intro-

duced, which were extensively crossed upon their descendants." In 1818 Mr Cornelius Coolidge, a Boston merchant, imported a yearling bull and heifer from the herd of Mr Mason, Chilton, Durham—"Cœlebs," by "Jupiter," 342; and "Flora," by "Lafon's Bull," which was sired by "Comet," 115. These two animals passed into the possession of Colonel Samuel Jacques, of Charlestown, in 1820, who raised from "Cœlebs" a celebrated family of cows, called "Cream-pots" because of their great milking qualities. "Flora" dropped fourteen calves from 1819 to 1833, ten of which were sired by "Cœlebs." This bull was "large, deep-bodied, and heavy, red roan in colour, and a fine handler, his live weight, in fair condition, being 2400 lbs." "Flora" was "chiefly red, with a few white spots—a fine cow, and a good milker." Between 1818 and 1820 Mr Parsons, of Brighton, Massachusetts; Mr Lyman, of Boston; and Mr Williams, of Northbro', Massachusetts, each imported a shorthorn bull from England. The bull imported by Mr Parsons was bred by Mr George Faulkner, of Northallerton, Yorkshire; and that by Mr Williams, a famous stock-getter named "Young Denton," 963, by Mr J. Wetherell. About 1820 several fine cows were imported into Boston and neighbourhood from the herds of Mr Wetherell and others; while in 1823 Admiral Sir Isaac Coffin presented a shorthorn bull and heifer—"Admiral," 1608, and "Annabella," both bred by Mr Wetherell—to the Massachusetts Agricultural Society. Mr Allan, however, says that the farmers of Massachusetts did not avail themselves properly of these animals, and that many of their progeny were

scattered and lost. In 1823 two heifers, "Conquest" and "Pansy," and a bull, "Washington," 1566, were imported from Mr Champion, of Blyth, for General Van Ranseller, of Albany, New York, in whose possession they and their progeny were bred for many years. Mr Skinner, Baltimore, who had imported these three shorthorns for General Van Ranseller, had imported other two heifers and a bull—"White Rose" and "Shepherdess," and "Champion"—in 1821, also from Mr Champion's herd. These latter three were purchased by Governor Lloyd of Maryland, and used on his property in that State. From these it is said that many good animals were descended. Between 1822 and 1830 Mr C. H. Hall, of Harlem, New York, imported several fine shorthorns from prominent herds in England, two of them having been bred by Mr R. Colling. With these and animals previously imported he formed a pretty large herd, from which many well-bred animals were spread over a wide district. In 1824 Mr John Hare Powell, of Philadelphia, began to import shorthorns from the herd of Mr Whittaker, and carried on a valuable herd for many years. He found a ready demand for his cattle at encouraging prices, farmers in Kentucky and Ohio having been occasional purchasers. Mr Powell's fine cow "Belina," descended from Mr R. Colling's stock through his (Mr Charles Colling's) celebrated "Red Rose," "Wildair," and "Duchess" tribes, is said, while only moderately fed, to have given twenty-six quarts of milk per day, which milk yielded butter at the rate of twenty and a half pounds per week. Mr Powell's herd was dispersed in 1840. About 1825 Mr W. Pierce, of Ports-

mouth, New Hampshire, imported a shorthorn bull named "Nelson" and a cow called "Symmetry"—"high-bred and well-descended animals"—from which was descended the famous ox "Americus," which was travelled for exhibition first in America and then in England; as well as the "Great Bull Hercules," also travelled for exhibition in America, and described as being "very large, yet far from coarse."

These various importations had done much to win a lasting fame for shorthorns in America; they had established their name most firmly in several parts of the Eastern States. But the great effort which was to lay the real foundation of shorthorn-breeding in the Union was reserved for 1834. In that year an association of breeders and graziers in the Scioto and Miami Valleys, in Ohio, "dissatisfied with the slow progress of their native cattle and their general deficiencies for the best markets," sent their agent, Mr Felix Renick, to England to make "an importation from some of the best herds of that country." Mr Renick returned with about twenty shorthorns, selected from the herds of Mr Batés, the Duke of Leeds, the Earl of Carlisle, Mr Whittaker, Mr Paley, Mr Mason, Mr Ashcroft, and others. The importation was received with great satisfaction by the association, and breeding was commenced in earnest. Another importation was made of about the same number the following year, and another of a smaller number the next; while subsequent importations were made by several other gentlemen, of whom General Shelby and Mr Henry Clay, junior, of Kentucky, and Mr Meff of Cincinnati, are mentioned. Between 1837 and 1839 Mr

Whittaker sent out upwards of a hundred shorthorns on his own account and on orders from Americans, the majority of his cattle having been sold by auction at the residence of Mr Powell. Among the other importers between 1830 and 1840 were Mr E. P. Prentice, of Albany; Mr George Vail, of Troy; Mr James Lenox and Mr John F. Sheafe, New York; Mr Whitney, of New Haven, Connecticut; Mr Dunn, Kentucky; and Mr Weddle, Rochester, New York.

"During these years," says Mr Allan, "shorthorns had become an object of great speculation, and many were sold in Kentucky and Ohio at prices ranging from 500 to 1000 dollars. . . . From 1824 to 1840 probably no less than 300 shorthorns were brought into the United States." Such has been the foundation of American shorthorn-breeding. Since 1840 the importations have been many and important; but detailed reference to these shall not be attempted. Probably the most important was made in 1854, when Mr Alexander established the Woodburn herd, and imported the "Duke of Airdrie" and his dam--the foundation of the famous "Duchesses of Airdrie."

CHAPTER XXV.

THE SUPPLY OF SHORTHORNS IN AMERICA, AND THE USE OF SHORTHORN BULLS.

THE NUMBER OF SHORTHORNS IN AMERICA.—MR ALLAN'S REPORT ON SHORTHORNS IN THE STATES.—HIS STATISTICS.—THE NUMBER OF SHORTHORN AND GRADE BULLS ANNUALLY RAISED IN THE STATES.—THE MATERIAL FOR IMPROVING THE COMMON CATTLE OF AMERICA FAR FROM LIMITED.—THE LEAVENING PROCESS.—FEATURES IN SHORTHORN-BREEDING IN AMERICA WHICH IMPAIR THE USEFULNESS OF THE BREED.—THE CAUSES WHICH HAVE HITHERTO DISCOURAGED THE RAISING OF GOOD BEEF.—NO OUTLET FOR AMERICAN BEEF.—EXCLUSIVE GRAIN-FARMING.—CARELESS SYSTEM OF CATTLE-FEEDING.—INDIFFERENCE IN THE PROCURING OF WELL-BRED BULLS.—LIMITED USE OF SHORTHORN BULLS IN KENTUCKY.—FARMERS REQUIRING EDUCATION.—A NOBLE WORK FOR THE AMERICAN PRESS.—ENCOURAGEMENT FROM THE OLD WORLD.—CATTLE-BREEDING IN THE NORTH OF SCOTLAND SIXTY YEARS AGO.—THE INTRODUCTION OF SHORTHORNS TO THAT REGION.—THE USE OF SHORTHORN BULLS THERE AT THE PRESENT DAY.—WHAT THE NEXT FIFTEEN YEARS MAY DO IN IMPROVING ANIMAL HUSBANDRY IN AMERICA.

It would, of course, be unsafe to venture upon more than a broad indication regarding the actual number of shorthorns in the United States at the present time. In an interesting report drawn up for the volume of the Department of Agriculture in 1875 by Mr Allan, on "The Shorthorn Breed of Cattle, considered with reference to the Beef and Dairy Interests of the United States," it is remarked that

in that year there were "within the limits of the United States at least 10,000 thoroughbred shorthorn breeding cows, which may produce 4000 bull calves annually, and the number of these cows is increasing from year to year. *The Annual American Shorthorn Herd-Book* gives about 8000 new pedigrees, chiefly of young animals from early calfhood to two years of age, full half of which are females, not before recorded; while of its more than 25,000 living pedigreed animals two-thirds or more are breeding cows, or to be so. To these may be added 50,000 high-grade cows not recorded in the Herd-Book, three-fourths blood and upward, which annually, from thoroughbred sires, produce 20,000 bull calves that, by proper care and feed, will grow into bulls capable of largely improving the product of the native and Texan cows."

Those who have any knowledge of the improving powers displayed in the British Isles by shorthorns will readily admit, on reading Mr Allan's statement, that the material at the command of American farmers for improving their general stock of cattle is far from limited. The leavened portion seems so large that before very long the whole lump ought to be leavened. The progress of the leavening process would indeed be wonderfully rapid were there no impediments to the contact of the leavened with the unleavened which we know not of. But attaching to general farming and shorthorn-breeding in America there are, in my humble opinion, several essential and exceptional features which retard the diffusion of shorthorns throughout the country, and impair rather than facilitate their useful-

ness, and which do not exist in the British Isles at all, or exist only in a modified degree.

Before the happy idea of refrigerators dawned upon the Yankee mind American beef had but very few open markets beyond the limits of America itself; while for wheat and Indian corn a pretty steady and constantly growing foreign demand was enjoyed. Grain-raising was, in fact, the mainstay of the American farmer, at any rate in most parts where shorthorns had penetrated, and, naturally enough, the saleable product received attention at the expense of that for which there was so little foreign demand. Farmers saw no profitable market for a greater supply of prime beef even though they were to raise it; and, therefore, to spend dollars in improving either their breed of cattle or system of cattle management seemed like casting bread upon waters which promised no return. No house-shelter has ever been provided for cattle, the animals being fed on the open fields all the year round, often in a temperature that an Englishman would shudder to think of. Indian corn is spread on the fields among the cattle as it grew, or on the cob—a system both indolent and wasteful—and in the arranging and regulating of meals little care or skill is exercised. Even where well-bred shorthorn bulls could be got in hundreds at from 60 to 100 dollars, or from £12 to £20, a-head, farmers still adhered to inferior nondescript bulls bred by themselves or neighbours. In Kentucky, for instance, where the influence of the importation of 1817 was principally felt in early days, shorthorn sires have been available for close on sixty years, and yet only a small percentage of the general cattle stock

of the State bears the stamp of the shorthorn. Even yet American shorthorn-breeders find considerable difficulty in disposing of their average young bulls at anything above the moderate sums of 80 or 100 dollars, or £16 or £25, a-head. The farmers of America require to be educated into the importance of vastly improving their stock of cattle and system of animal husbandry, as British farmers have been. They must be convinced that none but really well-bred bulls should be used; that cattle must have shelter from the blasts of winter, and get their food in a more digestible form. In the spreading of this much-needed education the agricultural press of America and the general promoters of its agriculture and best and most substantial interests have a great and noble work before them. Perseverance overcometh all things that are possible! Let these be their watchwords; let them follow and take heart from the achievements of their fellow-pioneers in the mother country, and good fruit will in due time crown their praiseworthy efforts.

To many Americans, and even some Britons, it may seem strange—but nevertheless it is a fact—that in the North of Scotland, now so widely celebrated for its beef and advanced system of animal husbandry, cattle-breeding was carried on almost as primitively and as carelessly sixty years ago as in Kentucky at that time. I have heard one of the oldest and most experienced farmers and shorthorn-breeders in Aberdeenshire remark that sixty years ago the cheapest bull, no matter what might be his merit, got all the custom. “If a good bull were put at one shilling, and a *shabby* creature at

a sixpence, the latter would have got all the patronage!" The introduction of shorthorns into the North of Scotland actually took place in 1829, when the late Captain Barclay of Ury purchased the highest-priced cow at Mr Mason's great Chilton sale; but it was not till six or seven years later that any extensive breeding was commenced. The increase in importations and breeding was thereafter very rapid; and for several years back there have not been half-a-score of cross or grade bulls in use at one time in all the northern counties of Scotland.

It is true that there are many more obstacles to the advancement of agriculture in a new country than are dreamt of in the philosophy of a home-bound Briton. It is also true that Americans have few equals (if any) in Christendom in their activity in developing any industry, new or old, in which they may descry dollars. If, therefore, the dead-meat trade across the Atlantic continues even as successful as it has been up to this time, the next ten or fifteen years will do more to improve the system of animal husbandry in America than has been done during the past quarter of a century.

CHAPTER XXVI.

THE AMERICAN "IDEAL" SHORTHORN, AND AMERICAN NOTIONS ON PEDIGREE.

FARMERS NOT ALONE TO BLAME FOR THE LIMITED USE OF SHORTHORN BULLS IN AMERICA.—AMERICAN SHORTHORN-BREEDERS NOT DOING WHAT THEY MIGHT TO POPULARISE SHORTHORNS.—THE AMERICAN BEAU IDEAL SHORTHORN: ITS DEFECTS FROM A BRITISH STAND-POINT.—THE AMERICAN CRAZE FOR A BUFFALO-CREST AND HIGH CARRIAGE.—HOW CALVES ARE TRAINED INTO A HIGH CARRIAGE.—THE AMERICAN LOVE FOR DARK-RED COLOUR.—ITS RESULT.—EVEN ROANS AT A DISCOUNT IN AMERICA.—HOW AMERICAN "SHOW-TEAMS" APPEAR.—WHIMSICAL NOTIONS REGARDING PEDIGREE.—ILLUSTRATIONS FROM THE PEDIGREES OF THE "DUCHESSES OF GOODNESS," THE "SEVENTEENS," AND THE "LOUANS."—AN UNPOPULAR CROSS ONCE THERE CAN NEVER BE WIPED OUT.—ITS STIGMA STILL CLINGING TO THE SIXTH AND SEVENTH GENERATIONS.—THE "SEVENTEENS" THE "PIONEER" SHORTHORNS OF AMERICA.—THEIR WESTWARD MARCH.—DESPISED EVEN BY THE INDIANS AT LAST.—THE "FALL" OF THE "LOUANS."—SHORTHORN SPECULATION IN AMERICA.—THE STRINGENT RULES OF THE AMERICAN SHORTHORN CONVENTION.—PREDICTIONS FOR THE FUTURE.

I do not think that American farmers are alone, or even mainly, to blame for the limited extent to which shorthorn bulls have hitherto been used in improving the general cattle stock of that country. I must confess I have been unable to get rid of an opinion formed during my visit to America—begun early, and strengthened at almost every new turn—that American shorthorn-breeders themselves do not do every-

thing that might be expected of them to popularise the noble breed of cattle which they so justly admire. The tone of their operations and sayings does not always tend, it seems to me, to give the general body of farmers the most favourable and most correct impression of the real use and value of shorthorn bulls in the improving of the ordinary cattle of the country. According to the British canon of judgment (there need be no hesitation in saying that many of these remarks are levelled from a British stand-point), the American *beau ideal* shorthorn is defective. Americans seldom handle an animal in forming their judgment thereon, and pay more attention to outline and size than quality. Even in the matter of outline their notions do not accord with ours. In their *ideal* very often will be found upright shoulders, flat ribs, bad short-ribs, prominent hooks, short, ill-packed quarters, light thighs, and big belly—all of which faults are compensated by high carriage, gay walk, short hair, and dark-red colour. The craving for high carriage has almost amounted to a *mania* in some parts, as may be judged from a symptom observed by a Scotch farmer who visited America in the summer of 1876. He was being shown through an American herd, and was not a little amused, on entering a shed or byre, to find three heifer calves with their heads tied so high up that their fore-feet could barely reach the ground! The poor animals, as he afterwards learned, had to undergo that process of torture for three-quarters of an hour every day!

Upright shoulders are not desired by American breeders any more than by their brethren in Britain; but the Ameri-

can model shorthorn must have a buffalo-crest, and without upright shoulders it is difficult to obtain that massive upheaval. Upright shoulders are suggestive of a light waist; and it is but too true that Americans not unfrequently sacrifice both waist and shoulders for the essential crest. The American love for red has been carried ridiculously far. Calves with dark-tinged hair are coming thick; and in the showyard a moderate red is sometimes preferred to a very good roan or an excellent white. Probably one of the most unfortunate features in British shorthorn-breeding at the present day is the wholesale objection to white-coloured animals; but in America the ill-founded idea is carried much further. There even roans are at a discount. I was rather amused to hear the auctioneer at a shorthorn sale which I attended in Illinois inform his customers, in robust and boastful language, that a certain bull, then being sold (red himself, of course), had never been known to get but two *roan* calves! Long, soft, velvet hair, so much prized in England and Scotland, "counts" against an animal in America; and though no harm can come from long hair on an animal, still it is easy to understand that the climate of America neither requires nor encourages such a growth of hair as that of England and Scotland. It is difficult, however, to see any advantage, æsthetically or otherwise, in clipping the tail till it becomes rat-like; of depriving the ears of every hair a quarter of an inch long; or of scraping the horns till blood is almost oozing out! And yet this is how some American "show-teams" appear.

Americans are also whimsical as to the value of pedigree.

We are so ourselves ; but in the Great West the whim has broader bounds. A " Bell-Bates " with six crosses is readily accepted as pure Bates ; while in the case of several other equally good, and some far better, families, it seems to be regarded as an absolute impossibility to wipe out the stigma of even one unfortunate cross—no matter how early in the pedigree it may have occurred. Take the case of the " Duchesses of Goodness " as an illustration. Mr George Bedford, of Bourbon County, Kentucky, offered a large draft of this excellent family for sale by public auction in the summer of 1876, and for the fashionably-bred members of the family an average of about 1200 dollars, or £240, a-head was obtained ; while a single unpopular cross, involving an indirect cross six or seven generations back, reduced the price to from 400 to 500 dollars, or from £80 to £100, a-head. The sale was stopped in consequence. The unpopularly-bred animals, like the others, could in reality claim a very valuable pedigree, containing, as it does, a large proportion of " Duchess " and " Red Rose " blood ; but it involves a distant cross, " Red Rose " by " Ernesty," which, for some not very clearly-explained reason, is held at great discount. The blemish of this unpopular cross seems to lie in this, that " Ernesty," though bred in England, had never been entered in the English Herd-Book. He was imported into America by the late Mr Walter Dun in 1834, and must have then been five or six years old, for his daughter, " Red Rose," was calved in 1830. It is asserted by many authorities that he was a pure-bred shorthorn and an excellent animal ; and certainly one of the best families of

shorthorns I saw on the American continent was that descended from "Red Rose" by "Ernesty," chiefly in the possession of Mr George Dun, near London, Ohio; which family, by the way, are depreciated in like manner to Mr Bedford's "Duchesses of Goodness." It need be no matter for surprise that "Ernesty" has no English register, for in his days in England the value of a registered pedigree was not fully recognised. Thousands of the best shorthorns in England at the present day cannot trace their lineage back even to 1834; and how much more ancient are some of the more recent and more idolised importations into America? "Ernesty" was a cotemporary of the "Matcham Cow," the progenitrix of the famous "Oxfords"—a family that rejoiced in a pedigree, at that time, of *two* crosses! If it were the case that the indirect "Ernesty" cross which slipped into the pedigree of a few of the "Duchesses of Goodness" really degenerated the individual merit of the animals stamped with it, then one might rejoice to see them so ill in favour. But is it really so? One of the best-known shorthorn-breeders in Scotland—a gentleman who is a recognised authority on all shorthorn matters—happened to be present at Mr Bedford's sale, and he assured me that a more uniform lot of shorthorn females he had seldom seen in one man's possession. The catalogue alone was the indication of what was *fashionably* bred and what was not. I visited the herd myself, and to this statement I unhesitatingly add my own testimony.

Another illustration of the whimsical notions that prevail in America regarding pedigree is afforded by the case of

the "Seventeens," or all animals tracing back to the importation of 1817. The unpopular tinge in this case seems to arise mainly from an allegation that at least some of the shorthorns which were imported in 1817 were crossed with the longhorns imported at the same time. But though "Mrs Motte" had been mated with a longhorn bull in 1817 or 1819, or about that time, might not shorthorns descended from the progeny of that union be as valuably-pedigreed animals as one-third, or probably even one-half, of all the shorthorns now living on both continents? Might not that cross-bred animal be as good a foundation for a shorthorn family as that upon which any of all our most fashionably-bred families are found? And how much older is the one foundation than the other? Even the most bitter opponents of the "Seventeens" will frankly admit that, in point of individual merit, they are one of the best families in America, and that they have all along deservedly borne a similar character. But they are "*Seventeens*," and that is enough. Their name sounds badly to the speculator, and therefore they are destined to lie far back into the shade. These "Seventeens" may almost be called the *pioneer* shorthorns of America; for, so to speak, they have led the westward march of the breed generally. At one time they were considered good enough for Kentucky; but their fashionable neighbours became too thick for them, and they moved to Illinois. Similar fate overtook them there, and Iowa next gave shelter. Once more they are beginning to feel their position uncomfortable; and, alas! where are they now to lay their heads? They are despised even of

the red man. In an order recently forwarded by an Indian chief for a shorthorn bull, express instructions were given not to send a "Seventeen!"

One more illustration will suffice. The "Louan" family for many years enjoyed a high reputation all over America, and were (and are so still) second to none in point of individual merit. They often sold at prices far over the thousand dollars; but recently it was pointed out that the "Ernesty" cross had connection with the "Louan" pedigree, and forthwith the family fell in value to the level of the unpopular branch of the "Duchess of Goodness" tribe.

There is another feature in American shorthorn-breeding that tends to impair the valuable influence of the breed in improving the general cattle stock of the country; and that is the amount of *speculation* that takes place among owners of shorthorns. There is far too much buying and selling, and too little earnest, steadfast breeding. It is not at all rare to find the same animal in two, or perhaps three, sale catalogues in one year; and every one acquainted with cattle management knows very well that such handling is not conducive to the breeding value of an animal. The speculative element is an expensive one, and will in time cure itself. It has been hitting hard already.

Though it may seem unloyal for a Briton to say so, still I state unhesitatingly that I cannot approve of the stringency of the rules adopted by the American Shorthorn Convention regarding the registering of shorthorns neither imported nor tracing directly to imported animals. Discretion there must be; but what was accomplished by English farmers half a

century ago could surely be repeated to-day. I confess I was pleased and amused to observe the high value which Americans attached to everything hailing from the land of the "Red, White, and Blue."

Turning away from the past, I will predict this much for the future, that the increased field of usefulness laid open for shorthorn bulls in America by the new outlet for American beef of the finest quality will be fully taken advantage of and fully met by the shorthorn-breeders of the States, and that those objectionable features alluded to will gradually and surely fade away.

CHAPTER XXVII.

SHORTHORN HERDS IN KENTUCKY.

THE HEADQUARTERS OF SHORTHORNS IN AMERICA.—THE INTEREST MANIFESTED IN SHORTHORNS BY KENTUCKIANS.—THEIR RESPECT FOR "TOMMY" BATES.—THE WOODBURN HERD.—THE DUKES AND DUCHESSES OF AIRDRIE.—MR RENICK'S ROSE OF SHARONS.—THE VINEWOOD HERD.—THE KIRKLEVINGTON OF AMERICA.—THE HERDS OF MR H. P. THOMSON—OF MR B. F. VANMETER—OF MR LESLIE COMBS.—THE GRASMERE HERD.—MR B. F. BEDFORD'S HERD.—MR GEORGE BEDFORD'S HERD.—THE DUCHESSES OF GOODNESS.—THE SUPPOSED BLOT ON THEIR PEDIGREE.—BATES BULLS USED IN KENTUCKY.

THE blue grass region of Kentucky is the headquarters of shorthorns in America, and probably few districts in the world suit this fashionable breed better. Shorthorn-breeding obtained a strong footing in this State more than thirty years ago, and now the number of herds is large, and the amount of capital invested in the breed very much greater than in any district of similar extent in either continent. The interest has received great attention from several of the moneyed landowners of the State, and a few have won for themselves honourable distinction, as well as large fortunes, by careful and systematic breeding. Kentucky has all along been a stronghold of Bates blood, and here the Bates cattle seem to have done very well. Good strains were selected

at the outset, and since their importation they have had full justice. It is amusing to hear how reverently some Kentuckians speak of "Tommy" Bates and his "grand breed of cattle." The good old laird of Kirklevington would have had his vanity satisfied for once, had he lived till now and paid the blue grass region a visit. His reception would probably have surpassed even that now being bestowed by Europeans on "Old Man Grant," much to the chagrin of some Americans and to the glory of others.

The Woodburn herd, founded in 1854, is one of the principal herds in America. The late Mr R. Alexander, of Airdrie, Scotland, and also proprietor of Woodburn estate in Kentucky, was the importer of a few of the best families of cattle in this country, and through his well-known Dukes and Duchesses of Airdrie his name will pass down to generations of shorthorn-breeders yet unborn. The Woodburn estate and herd are now owned by Mr A. J. Alexander, brother to the late proprietor. The herd has been largely sold from, but still it numbers upwards of 80 head. There are five Duchesses in the herd—"6th Duchess of Airdrie," by "Clifton Duke," 23,580; "7th Duchess of Airdrie," by same sire; "9th Duchess of Airdrie," by "Royal Oxford," 18,774; "21st Duchess of Airdrie," by "24th Duke of Airdrie," 22,643—*American Herd-Book*; and "10th Duchess of Oneida," by "2d Duke of Oneida," 32,702. The "6th and 7th Duchesses" are respectively fifteen and fourteen years old, and, of course, they cannot now be relied on for breeding. The "10th Duchess of Oneida" was purchased at the New York Mills sale three years ago last September

at 27,000 dols., or £5400, and, like most other females that spread through America from that celebrated sale, she has never bred. She is a neat, compact, little, well-fleshed cow of fair quality. The Duchesses of Airdrie generally are large, upstanding cows, with good quality of flesh, but flat rib, ill-filled quarters, and heads and horns that would not commend praise in a Scotch showyard. The horns are long, and point upwards. The "9th Duchess of Airdrie" has been a valuable cow, being the dam of the 20th, 24th, 26th, 27th, and 29th Dukes of Airdrie. The "24th Duke" is now in the herd of Mr Fox, England, and is said to be the best Duke bull ever seen. His three younger brothers—two years, one year, and six months old—are still at Woodburn, the youngest two being both by the "14th Duke of Thorndale." They are promising bulls, and are spoken of as coming "stars" in the Airdrie family. The calf is a special favourite, and certainly he has some good points—a strong, broad frame and good loins, but heavy, coarse head, and will want making up on both sides of the tail. The yearling has still a coarser head, and, to appropriate the parlance of his negro attendant (who, by the way, could run down pedigrees with wonderful alacrity), he is "big-bonded." The darkey, of course, thought he had called my attention to one of the Duke's *strong* points. The two-year-old was my favourite of the three. He is a lengthy, even, well-fleshed roan, of good quality and fair finish; but still, of all the connoisseurs I have met, only one agreed with me. A Duke bull must have peculiarities of his own. A big, heavy, high-reaching head and massive crest covers a multi-

tude of weaknesses. The bull at the head of the herd is "7th Duke of Oneida," 30,958, by "4th Duke of Geneva." He was sold when a yearling at the New York Mills sale for about 2500 dols., or £500, and since bought by Mr Alexander for 10,000 dols., or £2000, and is a deep, even, lengthy, good bull, but rather bare and plain about the tail-head. The other strains in the herd are four good useful cows of Bates's "Barrington" tribe, here called "Baroness," several "Filligrees" of Booth's "Farewell" sort; a few "Mazurkas," three "Minas," from imported "Mina," by "Bridegroom," 11,203; several of the Bell-Bates-Fletcher family; and several of Mason's Miss Wileys, from "Miss Wiley 2d," imported into Kentucky by the late Mr R. A. Alexander in 1853. The Mazurkas are descended from "Mazurka," by "Harbinger," 10,297, which the late Mr Alexander also imported; and, on the whole, they seem to be one of the best families in the country. Mazurka bulls are evidently valuable sires. Two Mazurka heifers and one Miss Bates heifer are among the most promising animals now at Woodburn. The herd generally is in good natural condition, and, on the whole, display plenty of size, fair quality, and good flesh.

Who has not heard of the "Rose of Sharons"? Thirty-one years ago, Mr Abram Renick, of Centreville, Kentucky, purchased "Thames," by "Shakespeare," 961, A.H.B. (he by "Duke of York," 1941), and out of "Lady of the Lake," a daughter of "Red Rose 11th" (afterwards called "Rose of Sharon"), by the Princess bull, "Belvedere," 1706. At the foot of "Thames" Mr Renick got a heifer calf called

"Red Rose," and sired by "Prince Charles 2d," 861, A.H.B.; while the cow was again in calf to the same bull, the product being another heifer, which was named "Dorothy." From these two young females Mr Renick has built up a herd which now numbers over 80 females, notwithstanding numerous sales from time to time. The family likeness among the Rose of Sharons is very marked, the general characteristics being lengthy, low, level bodies, very fine bone, kindly mellow touch, small heads, delicate horns, fine countenance, and excellent quality. They are not all complete from the hocks backwards, and some of them are slightly under size; but still they are admitted to be one of the best families of shorthorns in America, greatly surpassing all other Bates crossed herds I have seen in respect to quality and fineness of bone. It was a Rose of Sharon that won for Lord Dunmore the first prize in the cow class at the Christmas Fat Stock Show at Smithfield, London, in 1876; and her more immediate relations in Kentucky could be recognised at a glance. Rose of Sharon blood is in great demand in America, and no one who sees the herd roaming about in its native pastures would be in the least surprised that this should be so. In bringing his herd to what it is Mr Renick has practised in-breeding to a considerable extent. "Airdrie," by Mr Alexander's "Duke of Airdrie," and out of "Duchess," by "Buena Vista," by "Cossack," 13,563, was used for several years throughout the herd, without reference to relationship, and was followed by his son "Joe Johnston." It is claimed, however, that before "Airdrie" was used at all the herd was as uniform as when

"Joe Johnston" retired in favour of the "4th Duke of Geneva" (30,958, *Coats's Herd-Book*), who is now at the head of the herd. The "4th Duke of Geneva" is what Americans call a "straight" Duke—that is, he has no crosses away from Bates's own practice. He is lengthy, even, and strong on the loins, but rather bare of flesh and rough about the tail-head. It can hardly be said that the Duke is improving the Rose of Sharons. His young stock have heavier heads and horns than their dams; but they have also flatter ribs and plainer hind-quarters. Mr Renick does not join his Bates friends in their love for heavy, high-reaching heads and thick, long horns: he must have, above everything, fineness of bone, and nice, small head and light horn. The latter point has been carried a little too far. His herd would probably meet with more favour in Scotland than any other American herd in existence.

Mr B. B. Groom, of Vinewood, Winchester, Kentucky, has a Bates herd of about 200 head, the families represented being the "Duchesses," "Oxfords," "Wild Eyes," "Kirklevingtons," "Waterloos," "Fogathorpes," "Barringtons," "Acombs," "Places," "Craggs," "Bell's Georgias," "Lady Bates," and "Rose of Sharons." Mr Groom was in England little more than a year ago, and took home with him several English-bred Bates animals of high merit. He has now for use in his herd five imported bulls—"8th Duke of Geneva," 28,390; "Grand Duke of Geneva," 28,756; "3d Grand Duke of Weston," 32,079; "Oxford's Baronet," 29,499; and "Oxford's Geneva," 24,221, A.H.B., by "8th Duke of Geneva," and out of "7th Maid of Oxford," one of

the best imported cows. "Oxford's Geneva" is a very handsome highly-promising roan of two years, showing grand style, evenness, and good quality. "Oxford's Baronet" also looks well; but though the "8th Duke" is regarded as one of the most valuable sires in America, he does not captivate one by his individual merit. The famous "Windsome 16th," one of the best Bates heifers exhibited in England for several years, is now here, having been bought from Mr Fox at a high figure. This handsome light-roan and the writer last met two years ago in the beautiful valley of Taunton Deane, in the south-west of England, and during the interval both of us seem to have lost a little bloom. "Windsome" has been nursing. She is still a very fine animal, however, with grand top, and rib, and style. A few young heifers promise exceedingly well; and among the "Rose of Sharons" are several females of high merit. Vinewood is one of the finest properties in the Blue Grass region; it extends to about 1500 acres, and makes a beautiful home for the fashionable "red, white, and roan." Its owner is a faithful follower of the celebrated founder of the Duchesses; and at the present time his property has strong claims to the distinction of the Kirklevington of America.

Mr H. P. Thomson, the Messrs Vanmeter, and others in this neighbourhood, have moderately-sized herds. Mr B. F. Vanmeter has for many years been one of the principal breeders of the district, and is a recognised authority on all matters connected with shorthorn-breeding. The majority of his herd was sold out two years ago. Mr Leslie Combs, near Lexington, has a thriving herd of about 35 head,

several of which he imported from England and Scotland three years ago. "Anna 5th," by "Earl of Rosedale," 26,072, and out of "Anna 3d," by "Mantalin Prince," 22,276, is a good, useful cow, and has produced a very fine red heifer to "Rosary Monk," 35,316. The females purchased at the sale of Mr Fisher, Pitlochrie, Perthshire, have done well. The Coldcreams are fair specimens of the Queen's favourite tribe. There are also a few descendants of Colonel Townley's "Pearlette," by "Falcon," 12,055, and one very fine "Young Mary." The sire being used now is a Vesper bull—"Royal Vesper," by "Royal Commander."

The Grasmere herd is one of the oldest and most regularly bred herds in the country. Mr William Warfield, its owner, is one of the best living authorities on pedigree. His herd now contains about 50 head, and is in good, thrifty condition. The "Loudon Duchesses," a branch of the "Miss Wiley" family, are his principal tribe, and among the lot are a few animals of high individual merit. He has also a few good members of the "Young Mary" family, and some of the "Young Phyllis" tribe. The former are descended from "Young Mary," by "Jupiter," 2170, which was imported from England by the Ohio Importing Company in 1834; and the "Young Phyllis" tribe from "Young Phyllis," by Whittaker's "Fairfax," 1023, which was imported at the same time as "Young Mary." There are also two or three good females, tracing back to Mr C. Colling's "Old Daisy," by "Hubbach," 319. The herd includes a few very promising animals got by a Rose of Sharon and Mazurka bull.

Mr B. F. Bedford, Bourbon County, has a very carefully kept herd, numbering about 30 head, his chief family being Loudon Duchesses. The other tribes are Valley Princesses descended from "Old Daisy," and Rose of Sharons from "Flora," a full sister to "Thames." This herd is in good condition; and small though it be, there are a few good show animals in it. One or two of the best Loudon Duchesses are got by the "21st Duke of Airdrie."

Mr George M. Bedford, in the same county, has a herd of about 60 head, made up mostly of Duchesses of Goodness descended from Earl Spencer's "Goodness," by "Orontes," 4623—a family which shows excellent quality, good shapes, and wonderful uniformity. Mr Bedford offered his herd for sale last August; and as an indication of the strange notions Americans entertain in regard to pedigree, it may be mentioned that the sale had to be stopped on account of insufficient bidding, which was caused mainly by a suspicion of the cross of the "Duke of Airdrie," 2743, A.H.B., who was grandsire of many of the animals offered, and whose sire, *four generations* back, was the bull "Ernesty," 100,017, A.H.B., and who has no number in the *English Herd-Book*, though he was imported from England. Every one admitted that the "Duke of Airdrie," 2743, was a good sire, and, besides, he was the son of Alexander's "Duke of Airdrie," 12,730, C.H.B., who is looked back to as the best sire ever known in Kentucky. The "14th Duke of Thorndale" was offered at this sale, and brought 17,900 dollars, or £3580. He is still in this neighbourhood, and is hired at 250 dollars. The "4th

Duke of Hillhurst," a son of the "14th Duke's," is in use at Colonel Simm's, near Paris; while another son, the "Duke of Woodland," is at Mr Megibben's, at Cinthiana, who owns a pretty select herd.

There are a great many more herds in the State, but these samples must suffice. To show how closely the Kentucky breeders are identified with Bates blood, it may be worth while to add the following list of bulls now or recently in use in the State:—A. T. Alexander, Woodburn—"7th Duke of Oneida," 3493, *Shorthorn Record*: B. B. Groom, Vinewood—"8th Duke of Geneva," 28,390, *Coates's Herd-Book*; "Grand Duke of Geneva," 28,756, C.H.B.; "3d Grand Duke of Weston," 32,079, C.H.B.; "Oxford's Baronet," 29,499, C.H.B.: A. Renick—"4th Duke of Geneva," 30,958, C.H.B.: T. J. Megibben, Cinthiana—"Duke of Woodland," 22,990, A.H.B.; and "10th Earl of Oxford," 14,161, A.H.B.: George Bedford—"14th Duke of Thorndale," 827, S.R.: H. P. Thomson—"14th Duke of Airdrie," 7879, A.H.B.: Matthew Thomson, Winchester—"5th Lord Oxford," 31,738, C.H.B.: Colonel Simms, Paris—"4th Duke of Hillhurst," 21,509, A.H.B.: Ware & M'Goodwin—"3d Duke of Oneida," 11,798, A.H.B.: J. V. Grigsby—"2d Earl of Oxford," 8073, A.H.B. In addition to all these, many more bulls are used of secondary Bates families, and of tribes deeply crossed with Bates blood.

CHAPTER XXVIII.

SHORTHORN HERDS IN OHIO, MICHIGAN, INDIANA, ILLINOIS, MISSOURI, WISCONSIN, IOWA, AND KANSAS.

SHORTHORNS IN OHIO.—MR R. G. DUN'S HERD.—THE "ERNESTY" BLOT.—MR J. G. DUN'S HERD.—THE HERD OF THE HON. J. C. JONES AND MR C. HILLS.—MICHIGAN HERDS.—THE HERD OF MESSRS AVERY & MURPHY.—MR ALBERT CRANE'S DUCHESSES.—A CRACK "ROSE OF SHARON."—MR J. P. SANBORN'S HERD.—SHORTHORNS IN INDIANA.—CAPTAIN MEREDITH'S HERD.—MR S. F. LOCKRIDGE'S HERD.—A CELEBRATED SCOTCH-DESCENDED BULL.—MR HAMMOND'S HERD.—SHORTHORNS IN ILLINOIS.—MORE BUYING AND SELLING THAN STEADY BREEDING.—SHORTHORN SALES IN ILLINOIS.—A STRANGE TESTIMONIAL TO A BULL.—THE HERD OF MESSRS POTTS.—ABERDEENSHIRE SHORTHORNS IN ILLINOIS.—THE HERD OF MESSRS PICKREL & KISSINGER.—MR GEORGE MURRAY'S HERD IN WISCONSIN.—SHORTHORN SPECULATION IN IOWA.—THE PRINCIPAL BREEDERS OF IOWA.—THEIR FAVOURITE TRIBES.—MR ALBERT CRANE'S HERD IN KANSAS.—A REFRESHING SIGHT.—A BROAD—"ROOFED" BULL!

OHIO claims a considerable number of well-bred shorthorns. Mr R. G. Dun, near London, has a herd numbering about 60 females, and descended mainly from three cows imported by the late Mr Dun (father of the present owner of this herd) in 1833—viz., "Red Rose," by "Ernesty;" "Caroline," by "Dashwood;" and "Multiflora," by "Walter." There are also ten females of the Bates-Fletcher family—very fair specimens of the tribe. So

far as individual merit is concerned, this is one of the choicest herds I have seen in America; but the fanatical views that obtain here in regard to pedigree stamp it as one of third-rate value. Probably no cow ever introduced into America left a larger number of as fine cattle as "Red Rose;" but then her sire, though bred in England, did not happen to be recorded in the English Herd-Book, and so his progeny, down even to the sixth and seventh generations, is branded with the sin that degraded him. But, according to the Scotch proverb, "It's an ill win' that blaws naebody gude." The stigma so unjustly placed upon the descendants of "Red Rose" has kept their value or selling price so far behind that of the "spotless" families (about one-half less) that those who own them can afford to sell their bulls at from 80 to 100 dollars a-head to farmers around them. Mr Dun finds a ready sale for his young bulls at an average of 100 dollars a-head; and to obtain such bulls at that figure is certainly a capital thing for farmers. The "Ernesty" blot does not discolour the beef! The bull at the head of Mr Dun's herd is "Don Lonanjo," out of a "Louan" dam, and by "Plantagenet," 6031, A.H.B.

Mr J. G. Dun, of Dunglen, has a fair-sized herd of almost the same blood as the herd of his brother, Mr R. G. Dun. The Hon. J. C. Jones and Mr C. Hills, Delaware, have a carefully-kept, thrifty, useful herd of fair individual merit, and devote their attention mainly to the rearing of bulls for farmers—the proper aim and end of shorthorn-breeding. "Rose of Sharon" sires are being used in this herd.

Messrs Avery & Murphy, of Port Huron, Michigan, have a herd numbering in all about 110 head—about 70 cows and heifers and 25 bulls, the remainder being calves. The general character of the herd is good, and, both in respect to pedigree and individual merit, it contains several animals of great value. The 2d and 3d Airdrie "Duchesses," which Mr Albert Crane, of Durham Park, Kansas, bought at the Hon. Mr Cochrane's sale at Toronto in June of 1876, at 21,000 dols. (£4200) and 23,000 dols. (£4600) respectively, have been here since their purchase for breeding to the "23d Duke of Airdrie." The "3d Duchess" is by the "11th Duke of Geneva," is only four years old, and is an even, well-formed roan, of very fine quality, excellent touch, good rib and brisket, strong loins, and neat head and prominent eye, but rather long up-turned horns, and on the whole a trifle light in the fore-parts. She is a cow of considerably more than ordinary merit—she is indeed the best "Duchess" I have seen; but one has to look to pedigree to find value for the large sum Mr Crane has invested in her. And is it to be found there? Some say yea, and some say nay. The "2d Duchess," by "14th Duke of Thorndale," is also a good cow, lighter in colour, less even, and weaker in the loin than the younger one of the two. Since they came here each has produced a heifer calf, both of which are animals of great promise and good fair merit. The "2d Duchess" calf was dropped on the 5th of December 1876, was by the "2d Duke of Hillhurst," and is a thick, level, light-roan, rather "oxy"-looking about the head and neck. The "3d Duchess" calf was by the "4th Duke

of Hillhurst," was dropped on the 29th of August 1876, and is a lengthy deep-red of good shapes, fine "Duchess" style, and altogether of unusual promise. Thus far Mr Crane's purchase has been a lucky one, for his two cows are again well advanced in calf to the "23d Duke," who is probably the best Duke bull now in America, the gem of that flock, the "24th Duke," being now in the possession of Mr Fox, of England. Messrs Avery & Murphy paid 18,000 dols. (£3600), at the Toronto sale, for a daughter of the "2d Duchess"—Airdrie "Duchess V"—a neat two-year-old of fair shapes and good quality. She was got by "2d Duke of Oneida," closely resembles her dam in many points, and has produced a strong promising light-roan bull calf to the "4th Fordam Duke of Oxford" 21,554. The other families represented in this herd are the "Rose of Sharon," "Kirklevington," "Oxford," "Waterloo," "Barrington," "Princess," "Royal Duchess," "Craggs," "Cambria," "Roan Duchess," &c. The finest animal in the herd (so far as individual merit goes), and one of the best I have seen in America, is the two-year-old "Rose of Sharon" heifer "Rose of Sharon, of Durham Lawn." She has true outline, plenty of breadth and depth, excellent quality of flesh, soft mellow touch, and has strong broad loins, but deficient short-rib. She was purchased from Mr Simon Beattie when quite young, and is indeed a very handsome animal.

Mr J. P. Sanborn, of Port Huron, has a select herd of about 25 cows and heifers, including good specimens of the Victoria, Mazurka, Tea Rose, Craggs, and other families. His best cows are being bred to the "23d Duke of Airdrie."

Shorthorns are not very numerous in Indiana, but still it contains a few good useful herds. Captain Meredith, Cambridge City, has a thriving herd of about 30 head, in which he is now using a very good young "Wild Eyes" bull, imported from England by Mr B. B. Groom, of Kentucky, and bred by Mr Cheney, and after "9th Duke of Geneva." Captain Meredith devotes his attention mainly to the rearing of bulls for the general farmers, and is finding a good demand for his young bulls at from 100 to 150 dols. a-head.

Mr S. F. Lockridge, at his beautifully-situated farm of Waterlea, near Greencastle, has a herd of about the same size, established five years ago. His females, numbering 30 head, are, on the whole, a very creditable lot; and his stock bull, "Lord Strathallan," is one of the best bulls in either continent at the present day. He is out of "Rose of Strathallan," by "Arthur," 21,172—a triple winner at the Highland Society's Show, his granddam having been the fine cow "Rosa Bonheur," by Mr Cruickshank's "Bridegroom," 17,441. He was imported with his dam from Mr Currie, Gorebridge, Scotland, by Mr Miller, Canada, and is now six years old, and has won in Canada and the States over twenty prizes—all firsts but two—he having on one occasion beat the famous "Breastplate," 11,431, now in Iowa. He is a bull of great length and fine shapes and quality, and has added several very promising young heifers to Mr Lockridge's thriving, carefully-managed herd. He is assisted by a lengthy, substantial two-year-old roan named "Battle-Axe," and sired by "Breastplate," 11,431. Mr Lockridge also aims at rearing young bulls for farmers, and

has now on hand some four or five promising yearling bulls that would do credit to an average Scotch herd. These he expects to sell at from 100 to 150 dols., or from £20 to £30, a-head. They would bring from £5 to £10 more in Scotland.

Mr Hammond, also near Greencastle, has a very fair herd of similar size, presided over by a "Constance" and a "Princess" bull. He has two or three very fine cows.

A large number of shorthorns have been introduced into Illinois during the past ten years, and now this branch of farming is pursued extensively in several parts of the State. The herds are numerous, and range in size from 20 to 100 head—the majority being about 40 head. There are a good many animals of high individual merit and fashionable pedigree in the State; but there has hitherto been so much buying and selling that only a very few of the herds have attained anything like individuality of character. I attended two shorthorn sales in Illinois, and was amused at the American favour for red, and their dislike for "Seventeens" and "Louans." One of the many good things said of one bull was that he had never been known to get but two roan calves! The prices were considered beneath the American average for the past two or three years; but it seemed to me that they were higher by at least £5 a-head than the same class of animals would bring in Scotland. Messrs Potts & Sons, Jacksonville, obtained an average of £48, 16s. for 26 cows and heifers of fair individual merit, in high condition, and of such imported families as "Dedemonia," by "Frederick," 1060; "Fanny," by Booth's

"Premier," 1331; "Young Mary," by "Jupiter," 2170; "Amelia," by "Plato," 2443; "Young Phyllis," by "Fairfax," 1023; and "Finella," by Bates's "Grand Duke," 10,284. The young stock were mostly by "Master Geneva," A.H.B., 20,368, a good thick red "Geneva" and "Red Daisy" bull, bred by Messrs Baldwin & Pearce, Kentucky. Ten bulls averaged £44, 14s.

The Messrs Potts have still a very choice herd on hand, their stock bull being "Duke of Richmond," bred by Mr James Bruce, Burnside, Fochabers. The "Duke" stood second to "Rosario" at the Highland Show at Inverness in 1874, and has had a showyard career in America of almost unparalleled success. He is a compact, even, low-standing, richly-fleshed red of excellent quality. Two of the best females in the herd are "Red Lady," from Sittyton, and "Priscilla," from Burnside, Fochabers.

The other sale I attended was the dispersion of the herd belonging to Mr Edward Isles, Springfield. For 22 females the average obtained was £44, 12s., and for ten bulls, £37. The average for the cows was considerably lowered by several of them being in bad breeding condition. The catalogue contained four "Floras" from Cluny Castle, Aberdeenshire; and though one was out of season, they brought an average of £50, 4s. Two "Missies," from Upper Mill, Aberdeenshire, were also among the lot, and one realised £70, and the other only £16, on account of not having bred.

Mr Black, of Carrollton, offered his entire herd for sale about the same time; but the bidding for cows was so far beneath his expectation that he closed the sale and with-

MESSRS PICKREL & KISSINGER'S HERD. 227

drew a large number. Those that sold averaged 400 dollars, or £80.

Messrs Pickrel, Harristown, Illinois, and Kissinger, Clarksville, Missouri, have combined their herds, and have now one of the best-managed and most thrifty-looking herds I have seen in this country. It numbers, in all, about 120 animals of high average merit and good substantial pedigrees. It is headed by Torr's "Lord Lamech," by Mr T. C. Booth's "Knight of the Shire," and running back to "Sylph," by "Sir Walter," 2637, by "Flower Lad," of Torr's famous "Flower" family; and by "Baron Sidding-ton," a Kirklevington bull, bred by Mr J. P. Foster, and after "6th Baron Oxford." The largest family in the herd are the Carolinas,—a good, useful, prolific lot,—and among the others are several of the well-known "Breastplates" get, two good specimens of the Sittyton "Orange Blossoms," one "Red Lady" and one "Acorn" from the same herd, and one "Red Lady" from Uppermill. There are several show animals in the herd, and it is worthy of mention that during the past ten years the two herds have won in show-yard premiums no less than 31,677 dollars, or £6335, 8s.

Around Kankakee there are several good herds. The Messrs Winslow have a few good "Princesses."

Mr George Murray, of Racine, Wisconsin, a native of Aberdeenshire, Scotland, has been one of the best-known and most successful shorthorn-breeders in America for many years, and has now on hand a choice herd, numbering about 30 head. The stock bull is "Royal Oxford Gwynne," by "Lord Oxford," and imported three years ago.

by Mr Simon Beattie. He has three Duke "tops," then one Booth cross, and previous to that the pedigree is straight Gwynne. He has good shapes, nice finish, and excellent quality. The cow department consists of several families, all of more than ordinary merit. There are four or five "Venuses," running back to "Vellum," by "Abraham Parker," 9856, which (the cow) Mr R. A. Alexander, of Kentucky, imported; two or three "Lady Clintons," running back to imported "Cypress," by "Lord of Brawith," 10,465; three "Moss Roses," tracing back to "Mina," by "Bridegroom," 11,203; and a few "Lady Racines," running back to "Miss Hudson," by "Hermes," 8145.

Mr Jacobs, of West Liberty, and a few others, have been breeding shorthorns for close on ten years, and during the past four years the number of shorthorns in Iowa has been increased tenfold. There are now a large number of herds located all through the older-settled parts—the head centre being West Liberty, in the east of the State. The enormous success which attended American sales of shorthorns a few years ago created quite a craze for fashionably-bred shorthorns all over the Union, and well-to-do (and some not well-to-do) farmers plunged headlong into the enterprise, paying high figures—three, five, eight, ten, and twelve hundred dollars, and more—for their favourites. Several Iowa farmers joined in the rush, and in this way a few hundreds of very fine shorthorns have found their way into this State during the past three or four years. Almost every one of these buyers has already had sales,—some have sold out entirely,—nearly all at considerable losses; and thus a

good many of those high-priced animals that were introduced so recently have already gone elsewhere. But still there is a large number of very fine shorthorns in the State; and if their owners would stick to them, and build with care and economy, they would find their foundations solid and substantial, and their structures highly remunerative. Continued speculation would ruin both shorthorns and shorthorn-breeders. It has already been making itself felt. Most of the Iowa breeders, however, now signify their intention of sticking to their herds and establishing their names as shorthorn-breeders, and not as shorthorn-speculators—a title with which some American shorthorn-owners are occasionally dignified. For some little time the majority of Iowa shorthorns seem likely to be held at a rather high value for the general farmer—that is, for mating with common or grade cows. In the meantime, in consequence of the high prices which they paid for their animals, few owners of good herds can afford to sell their young bulls even as low as the best Aberdeenshire breeders can, or at less than from 200 to 300 dollars a-head; and as matters now stand, the general farmer can scarcely launch out that length. This induces many farmers to use inferior grade bulls, when, if they could be had for, say, 80 or 100 dollars, they might procure good shorthorn sires. It is expected that the demand for shorthorn bulls at from 80 to 150 dollars a-head will increase tenfold within the next few years, and the majority of Iowa breeders are likely in the future to direct their attention mainly to the raising of bulls to meet this demand.

The principal breeders around West Liberty are Messrs

Pliny Nichols, Miller, Barclay, Jacobs, Chase, Elliot, and Wilson—all of whom are within a radius of eight or ten miles. Their herds each number from 20 to 40, and contain several animals of high individual merit and of popular pedigree. They were all in high condition, though some had been "around the haystack" all winter. Roans are at a discount here—nothing but red will do; long hair is an objection; and the cry is for a Duke "top" on a "Young Mary," "Young Phyllis," "Miss Wiley," or some such bottom. Several sales took place around West Liberty last spring, and the average prices all over ranged from 230 to 250 dollars, or from £46 to £50, a-head.

Mr Albert Crane's shorthorn herd at Durham Park, Macon County, Kansas, numbers in all about 200 head, and contains a Bates and a Booth department. It has been collected with great care and almost regardless of outlay, is in good condition, and is really a very valuable herd. I visited this herd immediately after leaving the ranches of Texas, and it was indeed a refreshing sight to glance at those stylish massive roans after a six-weeks' ramble among long-horned, rough, ragged-looking Texans and grades! All things are judged by comparison. The popular "red, white, and roan" never before seemed so grand an animal. I saw no "razor-backs" at Durham Park. A characteristic American, who happened to inspect the herd along with me, and who claimed some acquaintance with Texas cows, handled one of the stock bulls carefully, and stretching his arm across the broad, well-covered loins of the massive animal, he remarked,

with the air of a critic, "Guess he ain't got a very well shed roof, that un!"

The Bates department numbers over seventy, and at the head of it are "Grand Prince of Clara," 28,781, "Royal Lancaster," 29,870, and "Lord Bates II.," 23,740—bulls of good character and fair quality. The second and third "Duchesses of Airdrie" are at Messrs Avery & Murphy's, Port Huron, paying a visit to the "23d Duke of Airdrie;" but their two yearling heifers ("Duchesses of Airdrie" sixth and seventh), after second "Duke of Hillhurst," are here, and are looking well. Mr Crane recently refused an offer of 100,000 dollars (£20,000) for these four females. The fine, lengthy, stylish light roan Hecuba bull, "Lord of the Lake," 20,250, is at the head of the Booth department, and is assisted by "Star of the Border," 24,923, of the famous Braithwaite Vesper family; by "Knight of the Crescent," a straight Torr; and by "Star of Empire," a pure Booth, and half-brother to "Star of the Border." Several of the females in this department are of very high merit. Mr Crane, from such high-pedigreed animals, as is about a third of the herd, rears bulls that are too valuable to use in the improving of the general stock of the country; but still from a number of his pure cows, and from a herd of grades, he raises, annually, more than a hundred bulls, which he sells at from 60 to 100 dollars to farmers throughout the Western States. He finds that the demand for bulls of this kind is larger than he can supply. A few of these graded bulls are plain, but on the average they

show fair shapes and good quality. A Colorado stock-owner took away a useful lot of 30 the other day, at from 60 to 70 dollars a-head. Shedding is abundant, and all the shorthorns were stalled at the time of my visit.

CHAPTER XXIX.

FARMING IN CANADA.

CANADA'S QUOTA TO BRITISH MEAT-MARKETS.—TRAVELLING IN AMERICA.—ENGLISH IDEAS THEREOF.—WHAT CANADIAN FARMERS SAY OF CANADA.—SIMILARITIES IN CANADA FARMING TO BRITISH FARMING.—THE ONTARIO PROVINCE—ITS SOIL—ITS CROPS.—THE "HOODING" SYSTEM.—TURNIP-CULTURE IN CANADA.—THE CATTLE STOCK OF CANADA.—THEIR CHARACTERISTICS.—INDIFFERENCE IN THE SELECTION OF BULLS.—CANADIAN INTEREST IN THE DEAD-MEAT TRADE.—THE COST OF CANADIAN BEEF.—RURAL LIFE IN CANADA.—HOW BRITISH-CANADIANS REVERE THE LAND OF THEIR BIRTH AND FOREFATHERS.—LABOURERS' WAGES IN CANADA.—HARD TIMES FOR THE WORKING MAN.

It is not the United States alone that send beef across the Atlantic to Britain. Canada has been giving the Old World its quota; and though no trustworthy data could be obtained as to the exact proportions of that quota, still it is plain that it forms a large and important part of the dead-meat trade between the New World and the Old. It might therefore have been expected that Canada would have been gone over as carefully as the States, and as much time and space devoted to a description of its farming; but to accomplish all this in one season would be a rather difficult matter; for, as every one knows who has visited Uncle Sam's broad possessions, they alone afford cloth enough for one summer's cutting. Americans live so far apart—that

is, they cover such an enormous extent of country—that to see all the representative parts entails an almost incredible amount of travelling. Our 'cute American cousins occasionally enjoy a hearty laugh at the contracted ideas entertained by British visitors of distances on the American continent. It was amusing to observe the smile of mingled pride and satisfaction that gleamed over the face of a Yankee the other day while relating to the writer the case of an English gentleman who had crossed the Atlantic in 1875 for a six weeks' tour in America, and who, on his arrival in New York, drafted out a programme for his proposed trip, which he handed to a friend for approval. That friend returned it with the remark that the programme was good, but he would require six months to carry it out !

Being desirous of seeing a little of Canada at this time, I have devoted a couple of weeks to it, and have seen a large extent of country, and conversed with a good many leading agriculturists. Of course I have not seen enough to enable me to speak with confidence on Canadian farming generally, and shall not presume to do so. I shall simply indicate what I have seen and learned.

It may first be mentioned that Canada farmers assert that their country is especially adapted for stock-farming ; that their general stock of cattle is superior in quality to that of the United States ; that they can raise beef as cheaply as the farmers in the States can, and also make it of finer quality ; and that the shippers of their beef have an advantage over those of the United States beef in having a

shorter sea passage to Great Britain. Most of those with whom I conversed agreed in the opinion that from 6 to 7 cents (3d. to 3½d.) per lb. of live weight (which would represent from about 5¼d. to 6¼d. per lb. of dead weight) would be a paying price for their finest beef cattle; and that, while the quality of beef was likely to improve and the quantity of first-class beef sure to increase, there was no likelihood of the cost of production advancing to any appreciable extent for more than ten years to come. They think that the new outlet for American beef will have a very healthy influence on stock-raising in Canada, and that the Dominion will by-and-by play a prominent part in the meat-supply of Great Britain. They say that the foreign demand for beef of the finest quality is fast spreading a desire for better bulls, and that it is likely to bring about in a few years a very decided improvement in the general cattle stock of the country. They assert that this improvement has already begun, and that farmers will spare no efforts to continue it.

The external features of Canada farming, as far as seen, resemble more closely those of British farming than what are seen in the United States. The farms are laid out more in accordance with home customs, and are better provided with houses and fences, and probably also rather better cultivated than the farms of the States. Nature seems to have done rather less for man in Canada, and as a consequence he has done more for himself. My travels in Canada were confined mainly to the Province of Ontario, where I have been assured a more advanced system of

farming is to be seen than in any other part of the American continent. It is but fair to say that my own experience substantiates this; and if the farmers of Ontario would only dispense with those antediluvian-looking Virginian or rail fences, their farms would exhibit few eyesores to even the most fastidious visitor from Great Britain. Ontario presents great variety of soil and surface. The former varies from light shingle to heavy loam, a medium fertile loam predominating. The natural drainage, as a rule, is good, and it cannot be said the land is difficult to cultivate.

All the ordinary cereals are grown; but wheat seems most in favour, at least on the better soil. A good deal of this variety is sown in the autumn; but, owing to the severity and length of the winter, considerable risk attends it when sown at this time. Spring sowing in many parts is becoming very general. Winter wheat has all been stacked or thrashed, while spring wheat, oats, and barley are partly in stook and partly on the root. Generally speaking, the crop this year is above an average. Harvesting operations seem to be conducted with a little more care here than in most parts of the States, less straw being left on the fields, and the system of stooking the grain is exactly the same as that which prevails at home. In the States, the stooks or "shocks" consist of a round pile of half-a-dozen or more sheaves, as in the foundation of a stack, with one or two sheaves as a hood on the top, to prevent the grain from being too hurriedly dried by the sun. At one time the hooding system was general over the greater part

of the north of Scotland, and is even yet practised on the north-west coast, the object in this case being to shelter the grain from wet. Canada is too far north for Indian corn to be grown in it to perfection; but still a considerable quantity is raised for fodder and cattle feed.

Swedish turnips are grown extensively in Canada; and, except in an unusually dry season, they grow pretty well. It was refreshing, after four months' travelling through the gigantic wheat and maize fields of the States, to see a luxuriant crop of turnips—the mainstay of the Scottish cattle-feeder. To a Scotchman turnips seem almost indispensable in the feeding of cattle; and though many appear not to recognise the fact, there can be no doubt that more extensive turnip-culture would be beneficial to the farming interest of Canada. To be sure, the crop is more risky in Canada than in the British Isles; but with careful attention it is pretty certain that, on the average, it would be highly profitable in Canada as well as in Britain. One of the main hindrances to the extensive cultivation of turnips in Canada seems to be the amount of manual labour they require. Unless thinned at the proper time, turnips do not thrive well; and as the warm climate brings them up very speedily, a large force of hoers is required to accomplish this. There is less trouble now, however, in obtaining labour of this kind than a few years ago. Potatoes grow well in Canada, and so also do peas, of which latter crop large quantities are raised. Peas are used extensively, and with much success, in the feeding of stock.

There is great variety in the cattle stock of Canada—many “scranky” skin-and-bone creatures, a large number of very fair beef cattle, and between the two a countless number not very many removes above mediocrity. Generally speaking, the common cattle of Canada seem to differ considerably from the common cattle of the States. The Canadian cattle are the smaller of the two, but they display finer bone and better quality than the cattle of the States—that is, the common cattle—whose main faults are big bones and want of quality. Well-bred, well-shaped cattle of good quality, though moderately little, are certainly preferable to cattle with big, rough bones and bad quality, however heavy—that is to say, if the size in the first case is not very diminutive. A good many of the Canadian cattle are faulty on this point; but it is only fair to say that a very creditable percentage of the cattle I have seen display both moderate size and good quality. I examined a small lot of three-year-old crosses (between a shorthorn bull and cross cows) the other day in the Guelph district (one of the best-farmed parts of the American continent), which weighed between 1400 and 1500 lbs. live weight, and which in every respect would class among the average of Scotch crosses of the same age. But these, I believe, were exceptions. I have seen no steers here to equal a few I saw in Illinois, taking weight and everything else into account, though I have been assured that they are to be found in the Dominion.

Here, as in the States, farmers, as a rule, have hitherto been very indifferent and careless in the selection of bulls

for breeding from. Inferior grade bulls are still being used extensively, though it appears that the past two years (especially the last one) have done a great deal to strengthen and spread a desire for better-bred sires. The demand for shorthorn bulls is greater at the present day than it has ever before been since the introduction of shorthorns into Canada; and should the dead-meat exportation trade continue and be successful, it is regarded as certain that the increase in this demand during the next two years will be double what it was during the past two twelvemonths. There is indeed plenty of room for this increase; and it is pleasing to more than the shorthorn-breeders of Canada that in all probability it will be experienced.

Canadian farmers have been taking a lively interest in the dead-meat trade with Britain, and look with confidence for some benefit from it. They seem satisfied that they can compete successfully with the United States farmers in the supplying of British markets with really good, cheap beef; they think that they can raise it as good and as cheaply as it can be raised in any part of the States, and that they can convey it to Britain with rather less risk of its quality being damaged during the voyage—a slightly shorter voyage than from New York. As yet the majority of the Canadian cattle destined for British markets have been shipped alive, and the other day I happened to see a large cargo of beef steers that were about to leave Montreal for Liverpool. They would average about three years old; would probably range from 1200 to 1500 lbs. gross live weight; were mostly red and white, with moderately long horns, rather big bones,

and imperfect shapes ; and while they showed slightly better quality than an average lot of the many lots of common cattle seen in the States, they were far too lean, as well as rather too rough, to command even average prices in England or Scotland. I have seen a large number of steers of the same age in the Dominion that greatly surpassed these in quality and condition ; but their owners did not seem inclined to sell out at present prices—about 6 cents (3d.) per lb. of live weight for beef of the very finest quality, and from 5 to 5½ cents (2d. to 2¼d.) for that of second quality.

Travellers through Canada cannot help being surprised and pleased to find in the homes of its farmers so strong an aroma of rural life in the Old World. A very large majority of the farmers of the Dominion hail from that beloved land of honesty and wealth ; and though they have been on this side of the Atlantic for twenty or thirty years, they have still adhered to many of the good, old, well-tried customs amidst which they passed their happy days of childhood. They speak of Britain as *home*, and love it as every good and true man loves the spot that gave him birth.

Generally speaking, farm-labourers' wages in Canada are very much about the same as in the States, the average being about 15 dollars, or £3, a-month, with board. The present hard times, it seems, are being felt rather smartly by the labouring classes ; for I have been assured by several men, who ought to know, that a good many labourers have not realised as much this summer as will provide themselves with food and fire during winter, in which season

they have but little chance of obtaining employment. I have met and talked with a good many Scotch labourers who emigrated here from five to ten years ago, and all complain of a scarcity of money. All are making a comfortable enough living, but "saving," they say, is out of the question.

CHAPTER XXX.

SHORTHORN-BREEDING IN CANADA.

THE EXTENT OF THE SHORTHORN INTEREST IN CANADA.—SPECULATION NOT SO RIFE HERE AS IN THE STATES.—"SHOW TEAMS" IN CANADA.—BOW PARK FARM.—SITUATION OF THE PROPERTY.—THE FARM BUILDINGS.—BOW PARK HERD.—400 SHORTHORNS IN ONE HERD.—OTHER BREEDERS IN THE ONTARIO PROVINCE.—ABERDEENSHIRE CATTLE IN ONTARIO.—THE HILLHURST HERD.—THE ÆSTHETIC AND THE USEFUL SIDE BY SIDE.

THE shorthorn interest in Canada has grown greatly during the past five or six years, and now it is indeed far from insignificant. Several of the ablest and most substantial men of the country are engaged in the enterprise, which is certainly one of the most interesting that any man could turn his attention to. A very large amount of capital has been expended on the importing of animals of high merit, and within the Dominion itself considerable effort has been directed to the improving and popularising of the breed. Though it cannot be said that Canada is entirely untainted in this respect, still there has been less shorthorn speculation here than in the United States; there has been more industrious, careful breeding, and less buying and selling. Speculation is a great drag on the usefulness of shorthorns, and the sooner it is abandoned the better. The climate of

Canada seems to suit shorthorns well, for the general appearance of the large number I have seen in the Dominion indicated sound constitutions and the best of health. There seems to be fewer "show teams" (to use an American term) here than in the States—that is to say, I met with fewer that were being specially trained and treated for the showing; but still Canada can boast of a large number of shorthorns of high merit, and a few that would do credit to their country and their owners in well-filled showyards on either continent. In Canada, however, as in the States, the cry is for more of the "red, white, and roan;" the Dominion ought to have ten shorthorns for every one it now has.

My introduction to the shorthorn interest of Canada was a favourable one. On the 2d of August 1877 Mr Hope conducted me through "Bow Park" herd, the founder of which is so honourably known as a distinguished statesman, as a successful newspaper editor and proprietor, and as an enthusiastic agriculturist—viz., the Hon. George Brown, of the *Toronto Globe*. The Bow Park herd was established about seven years ago, and was carried on very successfully by Mr Brown until recently, when it became the property of a joint-stock association called "The Canada West Farm Stock Association (Limited)," of which Mr Brown is president. The property lies in the county of Brant, about ten miles from the town of Brantford, and on the west bank of the Grand River, by which water it is nearly surrounded. The extent is 900 acres, and the soil mostly a very fertile alluvial deposit lying on a clay subsoil, a few small patches being covered with gravelly soil. There are several small

belts of ornamental timber; but with these exceptions the whole area of the property is under regular and very systematic and liberal cultivation. It is pre-eminently a "stock farm," and, of course, the system of rotation and crops is regulated to suit the purpose. The farm buildings at Bow Park are the most extensive and most complete I have seen in all my wanderings on this continent, and in point of capacity it is very doubtful if they are surpassed anywhere in England, Scotland, or Ireland. They are wholly built of wood, and are very conveniently arranged. There is an implement-house 200 feet long by 24 wide; a stable 180 feet by 24, containing 24 stalls, and having above it and the implement-house a large commodious loft. Besides seven large barns in different parts of the steading, there is one "great barn" extending to 220 feet by 48, with a root-cellar underneath capable of containing over 20,000 bushels of roots. Attached to the centre of this great barn is a crushing and steaming house, in which there are a twenty-horse-power steam engine and boiler, and efficient machinery for cutting hay and straw, crushing Indian corn and oil-cake, pulping roots, pumping water into the cistern, steaming the food for the cattle, and cutting firewood. The shorthorn-houses, or byres, as a Scotchman would call them, are three in number, and are each 270 feet in length, and have enclosed yards on each side. One cow-byre (for cows in winter after their calves have been weaned), is 32 feet wide, with an eight-feet waggon passage along the centre, and a range of boxes 12 feet by 10 on each side. Each box has a door opening into the outside court, and is meant

for one animal only. One of the other two shorthorn-houses is a stall byre 34 feet wide, and splendidly arranged and ventilated. There is an eight-feet waggon passage in the centre, with a row on each side of 62 stalls, the total capacity being thus 124 stalls. Beside these there are a large bull-house, a shorthorn cow and calf house, a calving-house, a calf-house, a pig-house, an ice-house, a sheep-house, a large range of open sheds, and two handsome cottages. These open sheds had a good trial when the herd was owned exclusively by Mr Brown, but experience proved indoor cattle-raising to be preferable.

The herd of shorthorns at present numbers close on 400 head; and while it contains a few animals of high pedigree-value, and several of superior individual merit, it also includes a few not very far above mediocrity. In a herd of such size there is room for variety; but every visitor must admit that the general character—the average quality—of the Bow Park herd is creditable indeed. It is probably the largest herd in existence at the present day, and certainly it would rank honourably in point of average merit. The foundation was laid by the purchase of the Woodhill herd (numbering over 30 cows and heifers) of imported Bates cattle, which was established as far back as 1832. This purchase was followed by a draft of nine well-bred heifers and a pure Booth bull from the celebrated herd of the late Mr Torr, Aylesby, England, all of which were imported by the Hon. Mr Cochrane, of Hillhurst, Compton. After this again a selection of 40 head was introduced from the mixed Bates and Booth herd of Major Greig, of Kingswood; and

since, important and valuable additions have been made from time to time of imported and American-bred animals. The principal families represented in the Bates portion of the herd are the "Grand Duchesses of Oxford," the "Duchesses of Barrington," the "Kirklevington Duchesses," the "Gwynnes," the "Rose of Sharons," the "Duchesses of Aylmer," the "Adelijas," the "Duchesses of Woodhill," the "Brides of Brant," the "Countesses of Brant," the "Duchesses of Springwood," the "Duchesses of Oakland," the "Mazurkas" (a Booth foundation with a Bates top), the "Lady Fawsleys," the "Seraphinas," the "Royal Charmers," the "Wild Eyes" family, &c., &c. What is called the Booth portion contains two good cows of the famous Mantalini tribe; a few "Princesses" from Booth's "Fame," by "Raspberry," 4875; a few "Paulines," descended from "Pauline," by Booth's "British Boy," 11,206—one of this family, "Pauline 8th," being one of the best cows in the herd. There are also in this section several very fair Louans, and a number of short-pedigreed cows of good individual merit, and valuable as breeders. The most valuable animals in the herd (according to popular notions) are the "Grand Duchesses of Oxford," the "29th Duchesses," and "Oxford Belle 3d," which were imported from England last summer. The former was bred by the Duke of Devonshire, was sired by "Baron Oxford 4th," 25,580, from the "19th Duchesses," is three years old, and is a fairly-shaped red roan of good quality. "Oxford Belle 3d" was bred by Colonel Kingscote, out of "Countess of Oxford," and got by the "Duke of Elmhurst," 28,401, is only two years old,

and is a little lighter in colour, rather better balanced, and neater than the other one. She is a trifle light round the waist, but has good style, and is, on the whole, a neat, sweet, handsome heifer. The "Rose of Sharons" in the herd are chiefly of what is known as the "Ohio sort," but there is one very fair specimen of Renick's kind. Among the others in the herd are two or three very fine highly-bred cows, which were imported last year by Mr John Hope, by whom they are still owned, and from whom the Bow Park Company have recently purchased two or three very promising heifer calves.

The bull now at the head of the Bates department of the herd is the "4th Duke of Clarence," a pure Duchess bull, and, on the whole, an animal of good individual merit. He was bred by Colonel Gunter, was imported last year, is dark-roan in colour, barely three years old, and has good ribs and shoulder and neck, and handles very kindly, but is a little plain on the hindquarters. On the whole, he is an exceptionally good Duke bull, and gives promise of still improving considerably. His assistants are the "Grand Duke of Thorndale 2d," 31,298, also imported; "Duke of Oxford 38th," bred by the Duke of Devonshire, and got by the "5th Duke of Wetherby," 31,033; "Duke of Oxford 30th," 33,712, also bred by the Duke of Devonshire, and got by the same sire; and the "4th Duke of Barrington," 30,924—all of which were imported to Canada from England. The imported five-year-old bull "Royal Tudor," 35,411, bred by Mr Aylmer, of West Dereham Abbey, Norfolk, England, and got by Rooth's "Royal Broughton," 27,352,

presides over the Booth section, and is assisted by "Vanguard," 21,248 (*American Herd-Book*), bred at Bow Park, after Mr Torr's imported "Grand Duke of Gordon," 28,757, and out of "Rose of Autumn," of the Mantalini tribe.

A herd of about a hundred head of Berkshire swine, from imported stock, is kept at Bow Park, and so also are a few Clydesdales and a small flock of Leicester and Cotswold sheep. The stallion in use was bred in Renfrewshire, and is a very fair specimen of the Clydesdale breed.

The Ontario province claims a long list of shorthorn-breeders, among whom are Mr David Christie, Mr Stone, Mr John Miller, Mr Wm. Miller, junior; Messrs Birrell & Johnston, Mr Armstrong, Messrs John and James Hope, Messrs R. & J. Hunter, Mr Dryden, Mr Davidson, Mr Major & Son, and Mr Yost. Mr Stone, who has been one of the most extensive and oldest importers of shorthorns in the Dominion, has a large and very superior herd, including a good many very creditable specimens of the Seraphina family which once adorned the celebrated herd at Keavil, Fifeshire, Scotland, and which is still in much favour both in England and Scotland. The herds of Mr Armstrong and of the Messrs Hunter contain a large infusion of Aberdeenshire blood, chiefly from the herds of Mr Cruickshank, Sittyton, and Mr Marr, Uppermill. Mr Davidson's herd is small, but most carefully kept, and consists entirely of Sittyton blood.

The Hon. M. H. Cochrane, of Hillhurst, Compton, Canada, is one of the best-known shorthorn-breeders on the American continent. He has imported a great many of

England's best shorthorns, both in point of pedigree and individual merit; and by his enthusiasm, skill, and liberality he has done not a little to bring the breeding of shorthorns into notice on the Western side of the Atlantic. Hillhurst extends to one thousand acres, and is one of the most tastefully managed properties I have seen in America. The shorthorn herd, which is now under the management of Mr Cochrane, junior (an able young man, with considerable knowledge of English farming), has recently been greatly reduced by sales—a draft of close on forty head having left the other week for England (for sale there) under the charge of Mr Simon Beattie. Still it numbers close on fifty head, and, in point of average merit and pedigree, is a very valuable herd indeed. There is a Bates and a Booth, or rather a mixed department. The former includes the "Tenth Duchess of Airdrie," "Airdrie Duchess IV." and her female calf, "Kirklevington XXVI.," four "Barringtons," and one or two "Moss Roses," running back to "Moss Rose," by "Belvedere II.," 3127. The Tenth Duchess is now nine years old, has produced seven calves, and is still a healthy, fresh-looking cow, showing great length, good shapes, and grand quality. The Fourth Duchess is a lengthy, stylish, four-year-old red, while her calf, the "Sixth Duchess of Airdrie," by the "Second Duke of Hillhurst," is a heifer of fine character and great promise. It has just been sold at a high figure to Colonel Canning, Burlington, Vermont. The Kirklevington heifer was imported in 1875, and was bred by Mr W. Ashburner, Nether House, Ulverton, England; was got by the second "Grand

Duke of Kent," 28,759, and is a neat, kindly-handling roan, with good loins. The "Duke of Oxford 35th," got by "Grand Duke 10th" out of "Grand Duchess of Oxford 19th," and bred by the Duke of Devonshire, is at the top of the Bates portion of the herd. He is two years old, and is a thick-set, even, well-fleshed red, of good promise. The main portion of the herd consists of mixed-bred cows in which Booth blood predominates, and which are kept for the purpose of supplying the ordinary farmers around with bulls for crossing with their common cows. The cows are of good average merit, and the hero that rules over these is one of the most distinguished sires in America, "Star of the Realm," by "Prince of the Realm," 22,627. He is now nine years old, but is still active, fresh, and stylish, and has been the sire of a large number of very fine animals, among the more celebrated of them being the well-known bull "Breastplate;" now in Iowa. The Hillhurst herd is very carefully managed; and it is pleasing to observe that, while pedigree is courted and kept up in the one department of the herd, the utilitarian reigns supreme in the other.

Mr Cochrane also owns a choice herd of Ayrshires, a few Clydesdale horses and Shetland ponies, a herd of Berkshire swine, and a small flock of Shropshire sheep.

CHAPTER XXXI.

HISTORY OF THE TRADE DURING THE SUMMER OF 1877.

BRILLIANT PROSPECTS IN SPRING.—VICISSITUDES IN SUMMER.—THE TRADE OVERDONE.—A CHANGE IN FRONT.—THE EXPORTS DURING THE SUMMER MONTHS.—THE CLASS OF BEEF EXPORTED AT THE OUTSET.—THE CLASS NOW EXPORTED.—THE CAUSE OF THE CHANGE.—DOLLARS DROWNED IN THE TRADE.—THE EXPORTERS STILL HOPEFUL, BUT LESS CONFIDENT.—COST OF TRANSIT ACROSS THE ATLANTIC, AND COMMISSIONS.—HOW THE AMERICAN BEEF IS DISPOSED OF IN BRITAIN.—DIFFICULTIES ENCOUNTERED IN RETAILING.—IMPORTATION OF LIVE CATTLE FROM AMERICA.—JERSEY CITY STOCK-YARDS.—RECEIPTS THEREIN SINCE 1867.

DURING the four months I spent in wandering over the American continent the dead-meat trade between America and Britain passed through two or three important phases. When this inquiry was begun, the babe, though more than a twelvemonth old, was still in its swaddling-clothes. In the eyes of some it was a child of promise; others could see dimly indicated in its tiny countenance an early and peaceful demise. The flush of vigour and strength which dazzled in its face, and its mushroom growth, were regarded by some as indications of a robust brilliant future, and by others as symptoms of unsoundness, and as being far too ruddy to be wholesome. The four months that have since elapsed have not been sufficient either to substantiate the one theory or

dispel the other ; but still the experience obtained since the 1st of April throws considerable light on its probable future. At that time about 10,500 quarters of beef were shipped every week from New York and Philadelphia for Britain, and from then till towards the end of June the weekly shipments not only kept well up, but occasionally increased a little.

It was a matter of great interest as to whether or not the trade could be continued undisturbed by the heat of the summer ; and at this time the eyes of all interested (and these were, and are, great in number) were upon it. Every one supposed that the cost of ice for the voyage in summer would be a little higher than in winter ; but those best acquainted with the process by which the beef is kept seasonable during the time it is on the way from the New World to the Old were very hopeful that, with sufficient care, the risk of damage from heat would be averted. They had the utmost confidence in the system of preservation ; and certainly, though it is not what it may yet be, it is now in a wonderfully perfect state. But fate seems to have had vicissitudes in store for the trade. A few cargoes arrived in Britain in a slightly damaged condition, reducing retail prices and shaking the confidence of patrons. Some attributed this to carelessness ; others maintained that no human effort could have averted it.

In the first chapter it was hinted that the trade had been in a way overdone—that too many had begun business as shippers ; and during the latter half of April and the months of May and June it was very clearly demonstrated that this was indeed the case. The supply brought into the British

markets was greater than the demand, and this aided the damaged cargoes in lessening the selling price. Besides, the exporting of such large quantities of the best class of American beef robbed the local markets of part of their usual supplies, and raised the home retail price by about 2 cents, or one penny, per lb. And thus, while the selling price in Britain was lowered and the cost of transit slightly increased, the buying price in America was raised to a corresponding extent. It was therefore clear that shippers must either abandon the trade for a time or export an inferior quality of beef, which they could buy in America at a lower price than the prime carcasses. Some adopted the former plan, and a few the latter.

Since the 1st of July the weekly exports from the Jersey City Stock-Yards have barely reached 300 head, or less than a half of the average during spring. Mr Eastman, who was the first to engage in the enterprise, and who puts through his hands on an average 2000 cattle a-week all the year round, still takes the lead in the export trade, shipping, as he does, and has all along done, more than all the others put together. His weekly exports just now average about 400 head.

As already stated, the class of beef exported at the beginning of the trade, and indeed up till two or three months ago, was the very best to be had in America; and for this the buying price was about $6\frac{1}{2}$ cents ($3\frac{1}{4}$ d.) per lb. of live weight, which would equal to close on $11\frac{1}{2}$ cents per lb. of dressed beef at New York—all carriages, commissions, and slaughtering expenses being covered by the hide, tallow, small offal, &c., which would bring from 9 to 12 dollars.

(£1, 16s. to £2, 8s.) per bullock. To this the cost of transit and commission to agents in Britain add 3 cents (1½d.) per lb., which would bring the cost of the best quality of American beef in Britain to about 14½ cents, or about 7d., per lb. Now, the average retail price for American beef has been under 7d. per lb.; so it will easily be seen that the best quality of American beef cannot, in the meantime, be shipped to Great Britain and sold at a profit. Being very reluctant to entirely abandon the trade, Mr Eastman and a few other shippers have been risking several cargoes of second-class beef, for which they pay in New York from 8 to 9 cents per lb., which would represent a cost of from 11 to 12 cents, or from about 5d. to 6d., per lb. in the British markets. Reference to the current retail prices for American beef in England and Scotland will show that even in this case there is a very small profit, if, indeed, any profit at all. I have talked with several of the shippers at this time, and they frankly admit that money has been lost in the trade since I met them four months ago, and that recent shipments have caused more loss than profit. They look on the exportation of inferior beef with little favour, for they fear that it may have a tendency to lower the opinion of American beef in Britain, and thus lessen the demand for it. They are far from being as confident as they were in spring; but still they believe that, once things come to their natural level,—once the overcrowded ranks of exporters “thin out a little” (which one of the shippers said, with a quiet smile, would probably be the case),—the trade will become steady, safe, and moderately remunerative. Some

of them also believe that the new outlet and increased demand for the best quality of American beef will effect a very large increase in the supply of beef of that quality in the country, which they think will result in a reduction of the buying price in America. But it must be mentioned that the opinion of the majority of American farmers goes against this, and supports the theory that the demand will keep ahead of the supply, or at any rate grow with it. The farmers do not anticipate a very large or a very speedy increase in the value of the best quality of beef, but they are very confident that the present rates will not only be maintained, but slightly advanced. When trade revives and money becomes more plentiful throughout America generally, which, of course, is only a matter of time, the demand and value of the best quality of beef will certainly both increase considerably. The present cost of conveyance across the Atlantic does not seem large, considering the great distance, the risk, and precautions that have to be taken to prevent damage by discolouring and to keep the meat fresh; but still it is believed that by-and-by a better and cheaper system of preservation will be discovered. * Mr Eastman indulges a hope that, in course of time, at least a half cent per pound will be saved by the substitution of condensed air for ice, which now forms a large part of the outlay. Science has achieved greater wonders than this would be.

On arriving in Britain, American beef is handed over for sale to agents, who receive a small commission, which is included in the cost of 3 cents per lb. above stated. It

is undoubtedly a fact that meat kept on ice for a time, though it may all the while be preserved in the best of condition, will become unwholesome sooner on exposure to air than meat never on ice at all; and one great hindrance to the complete success of the American beef trade is that the beef, immediately on its being taken from the refrigerators, must be disposed of, no matter what condition the retail market may be in at that time. It may, of course, occasionally happen that at the very time a cargo of American beef arrives in Liverpool, or any other port, the market will be largely stocked with native supplies; and in this case the foreign meat, while it continues compulsory to sell it soon, would in all probability have to be sold at a sacrifice. The New York shippers recognise this as a stubborn difficulty—as a danger continually staring them in the face. The constructing of refrigerators at the ports where American beef is principally landed, in which it could be stored to wait the market if necessary, would dispel this difficulty; but as yet, at any rate, the profits of the trade are too small to admit of this being done. Mr Eastman thinks the most practicable mitigation of the evil in the meantime would be the construction of refrigerators in the shops of the principal British retailers of American beef, where it could be kept safely to wait a good sale for at least a short time. He thinks that it would, in any case, be very beneficial for butchers to have refrigerators in their retailing premises. The losses caused this season by compulsory sale in overstocked markets have been large indeed; a great portion of the profit of the trade melts away in this manner.

The shipping of live cattle from America to Britain seems to have grown in favour this summer; but still it is not anticipated among American stockmen generally that this trade will become so large, or so safe or successful, as the dead-meat trade. The risk of losses at sea is greater, and the cost of transit nearly double. A few live cargoes have returned handsome profits, but by others the losses have been heavy. It is indeed a very risky trade.

A sentence or two may be added here regarding the live-stock trade at the Jersey City Stock-Yards, which were opened by a Joint Stock Company in October 1866. The number of cattle received into the yards in 1867 was 79,829; the number slaughtered in the yards, 16,791; in 1872—received, 246,323; slaughtered, 29,532; in 1876—received, 279,993; slaughtered, 113,876. Increase in receipts in nine years, 200,164; in the numbers slaughtered in the yards, 97,085. The number of sheep received in 1867 was 160,247; the number slaughtered, 143,639; in 1872—received, 401,476; slaughtered, 400,660; in 1876—received, 602,565; slaughtered, 600,917. Increase in receipts in nine years, 442,318; in the number slaughtered in the yards, 457,278. The number of hogs received in 1867 was 456,934; slaughtered, 423,512; in 1872—received, 701,025; slaughtered, 285,614; in 1876—received, 567,448; slaughtered, 555,735. Increase in receipts in nine years, 110,514; in the number slaughtered in the yards, 132,223. For cattle slaughtered in the yards the company makes no money charge; their fee is the four feet of the animal killed.

CHAPTER XXXII.

RECAPITULATION.

SIDE NOTES ON MY TRIP.—BENEFITS OF AN AMERICAN TOUR.—
FACILITIES FOR CROSSING THE ATLANTIC.—COST OF THE VOYAGE.
—COST AND CONVENIENCE OF TRAVELLING IN AMERICA.—COSTLY
SHAVE!—THE OBJECT OF MY MISSION.—A WRONG IMPRESSION
REGARDING THE COST OF BEEF-PRODUCTION IN AMERICA.—AN
INSTANCE THEREOF.—WHERE THE MISTAKE LIES.—MY OWN IM-
PRESSION.—THE QUESTIONS REQUIRING TO BE ANSWERED.—WHAT
IS THE PROBABLE QUANTITY OF GOOD BEEF IN AMERICA?—AT WHAT
PRICE CAN IT BE SOLD IN BRITISH MARKETS?

A TRIP across the Atlantic and through the United States forms a capital course of study—a valuable experience for any man, and especially for a Briton. It is good for one to see an order of things entirely different from that of his own country; to see newfangled notions worked into practical form, and institutions and social organisations that differ from those amidst which he has grown up, and which he has probably come to recognise as the only proper and satisfactory institutions and organisations that could possibly exist. Half a century ago, and even less, a trip to America was regarded in many parts of Scotland as a great and dangerous adventure. I have heard an affectionate but superstitious Highland mother declare that she would rather see her son laid beneath the green sod than allow him to

cross the awful deep. But times have changed, and so have the notions of Scottish mothers. A trip to America now is thought no more of than a journey from Aberdeen to Edinburgh fifty years ago; and it must be pleasing to every one who is interested in the welfare and prosperity of the two countries, who is desirous of seeing them flourish side by side, to observe that intercourse between the Old World and the New is steadily on the increase. In the course of a tour through the United States one can see that there are a few little points on which the sympathy and harmony between the Americans and Britons are not yet so perfect as could be wished; but mainly by friendly intercourse these remnants of things that were are fast being swept away. The facilities for crossing the Atlantic are now very perfect, safe, expeditious, and moderate, costing only about £1, 13s. a-day for first cabin for a double voyage, which usually lasts about twenty-one days. Then, in America itself, travelling is exceedingly pleasant and comfortable, and though a little higher than in Britain, the cost is less than some have stated it to be. The facilities for travelling provided by railway companies, the provisions made for supplying meals and repose during day and night, throw the British railway system far into the shade. During my four months' tour in America I travelled 11,420 miles by train, and, except on some out-of-the-way branches, I always found comfort and means of repose on the "cars." The average cost was close on $3\frac{1}{2}$ cents, or a little more than $1\frac{1}{2}$ d., per mile, and the average speed about twenty-two miles per hour. Posting is about 25 per cent. higher

than in Britain, hotel charges about 20 per cent., and such small services as washing, and haircutting, and shaving are more than 200 per cent. higher. The washing of a dozen handkerchiefs in a Chicago laundry would cost one dollar, or 4s.; and for cutting your hair would you grudge 35 cents, or 1s. 5d.?—or for a shave 15 cents, or 7¼d.? Still with care one can travel comfortably in America at about 10 dollars (or £2) per day. As indicating the facilities that are now enjoyed for travelling, it may be mentioned that in five months I travelled, by sea, river, railway, and road, about 19,000 miles, or close on four-fifths of the entire circumference of the globe.

But these are side notes. My inquiry is finished, and I must proceed to fulfil a promise to indicate my own impressions of what was seen and learned. It is hoped that some farmers may have followed my letters so closely as to be able to draw conclusions of their own, and that they will compare these with what may now be offered. My object was to state facts, and to obtain such full, complete, and accurate information on the subject as would enable others as well as myself to form a correct estimate of the prospects of the important trade that has created so much interest in both countries. A great deal of time and labour were spent in collecting estimates of the cost of beef-production in the various States visited; and in striking the averages stated in my letters the utmost care and impartiality were exercised. My opinions regarding the character and quality of cattle were freely given, but on most other points personal impressions were reserved. They shall not be so now;

and, while I quite recognise that every casual visitor is apt to run into some hasty generalisations, still I trust that there will be no reason to charge me with unfairness or want of care. My object was not to speak favourably or unfavourably of American agriculture or its beef-supply; my mission was to discover for British farmers the extent of competition they are likely to meet with from abroad.

To begin with, it may be stated that in spring a wrong impression seemed to prevail both in England and Scotland as to the parts of America which the imported beef was coming from; and therefore, also, as to the cost of its production. During the first three or four months of the present year a great deal of writing and speaking took place among agricultural communities on the subject of American beef, and somehow or other almost all these writers and speakers seemed to have got possessed of the idea that the beef we were getting from America was produced on the cheap grazing lands of the Far West; for all their calculations were based on the cost of production there, and not in the older States, such as Kentucky, Illinois, Indiana, Ohio, and Pennsylvania, where, in point of fact, the greater portion of the American beef that has as yet arrived in Britain has come from, and where the cost of production is very different from what it is in Texas and the other more westerly States. Advocates of the trade told us (and tell us still) that America could boast of producing at least a moderate quantity of as fine beef as has ever been raised in Scotland, England, or Ireland, and from this they would go on to quote the marvellously low cost of beef-production in

America, giving invariably the figures which really referred to the raising of the very worst quality of American beef.

A recent instance of this may be given. A Nebraska stock-farmer writes on the 12th of August to a Scotch newspaper to correct a remark made at a cattle show dinner by Mr Ferguson of Kinmundy, Aberdeenshire, to the effect that American beef was being sold in Liverpool for the London market as Aberdeen beef. After stating that the difference between corn-fed and turnip-fed beef will prevent this from being done, and that he has had some experience in handling beef in Scotland, this writer proceeds:—"I do not know how it [the American beef] might look after going there [to Britain], but this I do know, that we can sell here better beef than I ever saw in Scotland. If Mr Ferguson would come out here I could show him as fine cattle as he ever saw in the show-ring at Mintlaw, or any other place, which I can ship to Glasgow and sell at 6d. a-pound, and get well paid for raising. I have not got so large a herd as some. I left Scotland twenty years ago a poor cow-boy, but will sell this fall 300 steers that will weigh well-nigh 15,000 lbs. live weight. Said steers are three years old. We have no sickness here among cattle. Some of the large cattle-owners west of me will sell this season—some 3000, some 10,000, and some as high as 18,000 head of cattle, all very good beef, but not corn-fed, though as good as a great deal of turnip-fed cattle. They will be sold here for 1½d. per lb. live weight, and can be delivered in England for 4½d. at present rates of freight. Neither Mr Ferguson nor any other farmer need believe that we cannot supply

England with meat. Let us find a market; we will raise plenty."

These are no new statements; they have been made again and again during the past twelvemonth, and at every point they are misleading. I frankly admit that there is a much larger number of really good cattle (besides shorthorns) in America than I was prepared to find. In such States as Illinois, Kentucky, Indiana, and Ohio there are a great many more beef cattle than I expected there really were that would rank among the average of Scotch cross steers; but in those large western herds referred to by the writer quoted not a pound of beef is raised that could be placed on an equality with an average pound of Scotch or English beef; there is not one animal in every thousand that could be classed amongst even a second-rate Scotch herd. Supposing the very best of American beef were as good as any ever this Nebraska farmer saw in Scotland, he deceives himself and others (as has been shown pretty clearly already) in believing and stating that he can sell it at a profit at 6d. per lb. in Glasgow—7d. per lb. would do no more than pay him—that is, for the *very best* of American beef. But what is most misleading in his remarks, as well as those of many other writers and speakers on the subject, is his placing of the immense herds that roam about on the prairies of Texas and the other Western States on a level with the prime or best quality of beef cattle in the older States; or, in other words, in including Texas, Kansas, Colorado, and Nebraska beef in that class of American beef which is declared with such emphasis to be as good as any ever seen in Scotland,

and in using the figures which refer to it in calculating the price at which prime American beef can be sold in British markets. A clothier who buys one web of cloth at 4s. a yard, and another at 5s., and says he can sell both at 4s., makes no greater mistake. If these many thousands of cattle are to be sold at three cents, or $1\frac{1}{2}$ d., per lb. live weight, or about six cents, or 3d., per lb. of dressed beef, they must be an inferior lot even of common western cattle, for the rubbish which I saw picked up for the packeries cost just about that figure. The best class of common western cattle—the cattle of Texas, Kansas, Colorado, Nebraska, and the Territories, or, for example, those bred and fed on the prairies of Colorado by Mr Iliff—sell at from $3\frac{1}{2}$ to $4\frac{1}{2}$ cents (about an average of 4 cents, or 2d.) per lb. live weight, which would make the cost price in Glasgow about $5\frac{1}{2}$ d. per lb., allowing a half cent per lb. for carriage and other transit expenses before New York or the port of exportation is reached.

But the mistake lies in its being supposed that this quality of beef is being exported to British markets. It has never been, at least beyond a mere experiment, and is never likely to be. It is fully recognised by all actually engaged in the trade, and by many others who think over the matter carefully and impartially, that nothing but the best quality of American beef will ever meet with even reasonable favour in Britain, or really pay for exportation. As already stated, a little beef of secondary quality is being exported just now, but shippers themselves say that there is a danger of this damaging the trade; and as soon as cold weather sets in,

and larger supplies of the best quality of beef are available, the shipping of second-rate beef will be abandoned, at least by the principal exporters. But even this second-rate beef is many degrees better than that raised on the prairies of the extreme West and South; and as dressed beef it costs about two cents per pound more. There is no doubt that the best quality of American beef is quite good enough to command sale in British markets at a very fair price—what that price is may be seen afterwards; but I do not hesitate to affirm that the ordinary or common beef of America—the beef of Texans, Cherokees, and the “common” American cattle so often spoken of in my notes—will never meet a steady demand in Britain, or realise such prices as would remunerate its exporter—at least so long as it remains of the quality it now is. And I expect to be able to show that a very large percentage of the whole American supply of beef must be classed as common American beef.

My firm impression is, that until both the class of cattle and the mode of their treatment are greatly improved, the British markets will never be disturbed by the ordinary beef of America, but that the best quality of American beef—that of all graded or improved cattle—will be poured in upon us, and will find a moderately ready sale at a certain price. The questions are—What is the probable quantity of what is called the “best quality of American beef?” and What is the price at which it can be sold at a profit in British markets? An attempt will be made to throw some light on both these very important points.

CHAPTER XXXIII.

RECAPITULATION.—THE QUALITY AND COST OF COMMON AMERICAN BEEF.

THE QUALITY OF AMERICAN BEEF MOST LIKELY TO PAY EXPORTATION.—BRITISH IDEA OF WHAT BEEF OUGHT TO BE.—CONSUMERS OF INFERIOR BEEF WIDE-SPREAD.—CONSEQUENT DIFFICULTIES IN DISPOSING OF SECONDARY AMERICAN BEEF.—PERCENTAGE OF GOOD BEEF IN AMERICA.—WHERE RAISED.—THE BEEF OF TEXANS AND "COMMON" AMERICAN CATTLE CONSIDERED UNSUITABLE FOR BRITISH MARKETS.—THE REASONS THAT LED TO THE IMPRESSION.—THE CHARACTERISTICS OF TEXAS CATTLE.—THE SYSTEM OF CATTLE MANAGEMENT IN TEXAS.—BEEF, NATURALLY BAD, MADE WORSE THEREBY.—HOW.—CATTLE MANAGEMENT IN KANSAS, COLORADO, AND NEBRASKA.—CHARACTERISTICS OF THE "COMMON" CATTLE OF AMERICA.—HOW RAISED AND FED.—THE "FEAST AND FAMINE" SYSTEM OF FEEDING.—THE EVILS THEREOF.—GRADING OF BEEF IN BRITISH MARKETS.—THE INFLUENCE THEREOF ON THE SALE OF INFERIOR AMERICAN BEEF.—THE COST OF TEXAS AND "COMMON" AMERICAN BEEF.

It has been stated—upon the authority of those who have been engaged in the shipping trade, and others who have observed the progress of the new enterprise with care—that in the long run none but really good beef would pay exportation to Britain. A few cargoes of inferior beef may be tried at a time; but if any class of beef will return a permanent profit, it is a good quality of beef, and that only. The people of Great Britain have a high idea of what beef

ought to be, and do not grudge to pay a fair price for a good article; but if an inferior carcase comes into the market, it receives very little attention indeed, and sells at a low figure—invariably lower in comparison with its cost price than beef of the best quality. The cost of conveying a ton of the best and a ton of the worst American beef across the Atlantic is exactly the same, and so are the commissions charged by salesmen; but while the one will always find a moderately ready sale at a reasonable price, the other may (if the market should happen to be well stocked) have difficulty in finding a purchaser at all—at least at anything above a sacrifice. There is little doubt but that in every beef market in Britain a small quantity of inferior beef is sought for and supplied—or, in other words, there is undoubtedly a large number of beef-eaters throughout the country generally who will have beef, and yet cannot afford to luxuriate in anything better than third-rate quality; but this class of beef-consumers is scattered so thinly over the country, that before American shippers could put their inferior qualities of beef within their reach their profits and a little more would be squandered in carriage charges and other incidentals. It may therefore be taken for granted that the better qualities of American beef only will pay exportation to this country. It has also been hinted that that portion of American beef that could be called a good quality of beef, good enough to suit the British markets, is far from large, and that its production is confined to a comparatively small area—mainly to the States of Illinois, Kentucky, Ohio, and Indiana, each of the neighbouring States

contributing a little. The beef which grows upon the bones of my old friends the long-horned Spaniards away down in Texas, as also of the "common" cattle of America (probably with a very few exceptions in the latter case), is not the beef that finds acceptance in the homes of beef-eating Britons. The percentage of bone and gristle to meat is too high, and the quality of that meat too coarse, to admit this class of American beef into the beef markets of Great Britain. At least that is my opinion, and some of the reasons that led to the impression may be given.

Take the Texans first. As stated in my first chapter on Texas, these are none else than full-blooded Spanish cattle, direct descendants of importations which the Spaniards made from time to time after colonising Mexico early in the sixteenth century. The Spanish breed of cattle is not altogether unknown in Britain; but though various attempts have been made to popularise it, it is too inferior to the native breeds of cattle to allow it to obtain a footing. The general characteristics of the breed are long, spreading, half-turned-back horns, long legs, thin, lanky body, big, ill-put-together, ill-balanced bones, throwing the body high at the hocks and low on the rumps and loins, coarse head, thin thighs, and light waist; a large percentage of bad beef to good; and various colour, generally yellow, red, roan, dun, or black, with very often an iron-coloured stripe along the back. The quality of their beef is naturally inferior, the grain coarse, and the percentage of bone and muscle very high. Their hair is of very coarse quality, and their back too truly of the Gothic style of structure to carry a large

quantity of roasting beef. \ In fact, a jocular Indiana lawyer was not far wrong when he declared with emphasis to the writer that he "could salt in its horns all the roasting beef an average Texan steer was capable of carrying!" It could not be expected that any race of animals allowed to live at lion freedom would, of themselves, improve very greatly in quality or general characteristics,—improvement can be secured only by skilful breeding and careful feeding,—and in Texas and Mexico the Spanish cattle for many years lived and died and procreated their kind with almost as little disturbance as the "kings and queens" of the African forests. It need, therefore, be no matter for surprise that the millions of Spanish cattle now roaming about in Texas are very little, if indeed any, superior to the herds on the plains of Andalusia from which they originally sprung.

During the past twelve or fifteen years, since the end of the late civil war opened up the thinly-stocked farms of the Northern States to the pent-up herds of Texas, the Texan stock-owners have been doing a little to ameliorate the condition of their immense bestial possessions; but while the present practice prevails of allowing every man's cattle to run at random over the prairies in a semi-wild condition, and mingle at will with others,—so long as a state of matters exists which makes it impossible for each man to have the exclusive management of his own herd, to make certain that his own sires only shall mingle with his own cows,—improvement must of necessity be very slow and unsatisfactory.

Bad as the beef of Spanish cattle naturally is, the system of management in Texas and the Far West generally tends

to make it still worse. The cattle in these parts have millions of acres to range over if they should so incline, and, as might be expected, they accomplish an enormous amount of walking in the course of a year. The tendency of this is to further increase the natural development of muscle, decrease the quality of the meat generally, and seriously retard the feeding of the animal. In Texas, as all over the more Westerly States, cattle are almost entirely dependent upon what they can gather themselves for their subsistence both in summer and winter, and this fact itself very greatly deteriorates the quality of their beef. Invariably they can find a sufficiency of food in summer, though in an exceptionally dry year they may have to accomplish a great amount of walking before they can satisfy their appetites; but in winter they are not only exposed to severe storms, but have extreme difficulty in gathering food enough to keep them alive; and thus Texas and prairie cattle generally become fat and lean every year—the flesh and fat laid on by the sweetness of summer are worn away by the cold and the hunger of dreary winter. That humorous Irishman already referred to seemed to think that this “feast and famine” system of feeding made well-mixed beef; but whether or not that is so, it is very certain that it does not also make beef juicy and tender. It undoubtedly lowers the percentage of prime “cuts” in the carcasses, and makes much of the beef tough and dry. Those thoroughly acquainted with the feeding of cattle know very well that it is by feeding an animal from its birth onwards without variation, and in that way only, that the finest quality, as well as

the maximum quantity, of beef can be produced; and feeding in this manner is an impossibility to the Texan cattle-owner as long as the present half-civilised system of prairie cattle management prevails.

It has been stated that the system of cattle management in Kansas, Colorado, and Nebraska and the Territories resembles very closely that in Texas, and also that the stock of cattle in these parts consists mainly of Texan cattle; and my remarks as to the quality and character of the Texan beef apply with almost equal force to the beef raised in all the States named, as well as in the Territories. To be sure, in Kansas, Colorado, and Nebraska, a few cattle-owners, by using improved bulls, have effected considerable improvement on the big-boned Texans and Cherokees with which they founded their herds; and, again, in a few cases, especially in Kansas, hand-feeding in winter has come to receive a little attention; but still in all these parts I do not think there is a ton of beef raised that could be classed anything above third-rate beef. Western stock-owners themselves, of course, do not think so. I was assured over and over again by owners of prairie herds of cattle in all the States named that they raised as good beef as could be found anywhere in the world. Evidently beef has no universal standard of quality.

The "common cattle" of America, which form the "rank and file" of the live stock of all the States east of Kansas, are certainly a degree superior to the long-horned cattle of Texas; but still they are far from being a good class of beef cattle, and, with a few prominent exceptions,

their beef as now produced is too inferior in quality to suit for exportation to Britain. These common cattle are a nondescript class, descended from one or other or all of the many different breeds that have from time to time been introduced into America, which include cattle from Spain, the West Indies, Holland, Sweden, Denmark, France, and England, Scotland, and Ireland. They exhibit great variety of shapes and colour, and are, on the whole, quite unworthy of the very rich country which they cover. They are too big-boned, too sharp along the back, too flat in the rib, and display too much muscle and far too little quality and evenness of flesh. A bullock of this class may be almost as high in condition as he could possibly be made; and yet, if you were to touch him on some of the more prominent points, you would feel a very hard substance much too close to the surface. His hooks and rumps are never properly covered. His legs are far too elephant-like, and in the flank and between the hind legs there is a great deficiency of fat.

It is also quite true that this class of cattle receives much better treatment than the immense herds that roam unheeded on the prairies. A very large quantity of Indian corn is now given to steers of the common breed; but, given as it is in the open fields (no matter how stormy the weather may be), and without its being ground or bruised at all, the animals do not derive anything like full benefit from it. Nothing could be more short-sighted than the system which American farmers pursue of allowing their feeding cattle to consume their food and lie night and day

in full exposure to the rigour of winter. However liberally cattle may be fed outside, they can hardly be expected to add more than 35 or 40 lbs. to their gross weight during the three coldest months of winter; while the same animals, with even less food, would make at least 100 lbs. of increase if they were properly sheltered and well attended to otherwise. Cattle exposed all winter require well-nigh one-half their food to keep up the animal heat.

Another peculiarity in the American system of feeding cattle, which still more deteriorates the quality of the beef, is allowing the steers to run about and pick up food as best they can till they are rising three or four years, when they are turned on to full rations as feeding animals. During summer they take on a fair coating of flesh, only, however, to lose it by the dearth and exposure of winter, and thus, as in Texas, common beef steers are high and low in condition two or three times before they reach the axe of the butcher. A carcase, therefore, which was naturally of second quality is made worse by the manner in which its beef was laid on. That portion of the beef which has been put on by the systematic and liberal feeding of the last few months the animal is alive is probably sweet, and tender, and juicy enough, but beyond that there is a considerable percentage of old, tough, dry, inferior beef, shrivelled up and "awfu' stringie," to quote from a shrewd Americanised Scot. It is this very peculiarity more than any other that renders a very large quantity of the common beef of America unsuitable for exportation to Britain. In British markets beef is graded to a very great extent; and while the better portions

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of the carcasses of the common cattle of America would sell at a fair figure, the inferior parts, which form a pretty large percentage of the whole, would have to be sold at so low a price that the total sum received would be reduced below a paying point. The system of feeding, as well as the breed of cattle, is greatly in want of improvement.

As already stated, my impression is that the beef of Texas, Cherokee, and the common cattle of America is not likely to be offered in British markets—at any rate, not until these breeds and the mode of treatment they receive are very greatly improved; but, lest any one should have ideas to the contrary, it may not be out of place to indicate at what price these varieties of American beef could be sold in this country. The best class of Texan beef steers can be bought on their native ranches in the autumn (for at any other season they could not be called beef cattle) at from 3 to 4 cents per lb. of live weight, which, with carriages, would bring their dressed beef in New York to a cost price of from $6\frac{1}{2}$ to 8 cents, or $3\frac{1}{4}$ d. to $4\frac{1}{4}$ d., per lb.; and in Glasgow or Liverpool to from $4\frac{3}{4}$ d. to $5\frac{3}{4}$ d. per lb. The rank and file of the cattle of Kansas, Colorado, Nebraska, and the Territories cost about the same; but in Kansas, Colorado, and Nebraska there is a small percentage of rather better bred and also better fed animals (Mr Iliff's "top" steers, for instance), whose beef, by the time it could reach Glasgow or Liverpool, would cost from $5\frac{1}{2}$ d. to $5\frac{3}{4}$ d. per lb. The common cattle of America—that is, the general cattle stock (exclusive of shorthorns and high grades) of all the States east of Kansas and Nebraska—cost,

where they are fed, from $4\frac{1}{2}$ to 5 cents per lb. of live weight, which would represent in New York a cost of from 8 cents to 9 cents, and in Liverpool or Glasgow from $5\frac{1}{2}$ d. to 6d., per lb. of dressed beef—according to the distance the animals or their beef would have to be conveyed before reaching New York, and their percentage of dressed to their live weight. On the average these common cattle would dress from 52 to 56 lbs. of beef for every 100 lbs. of their gross weight. Texans and other prairie cattle would not dress much over 52 per cent. of their live weight.

CHAPTER XXXIV.

RECAPITULATION.—THE BETTER QUALITIES OF AMERICAN BEEF, AND THEIR COST.

WHERE THE BEST VARIETIES OF AMERICAN BEEF ARE RAISED.—THE CATTLE UPON WHICH THEY GROW.—THE QUALITY OF THE BEST CLASS OF AMERICAN BEEF.—BROTHER JONATHAN'S OPINION.—MY OWN OPINION.—ARGUMENTS IN SUPPORT THEREOF.—CATTLE-FEEDING A SCIENCE IN BRITAIN.—WHAT IT IS IN AMERICA.—AN ILLUSTRATION FROM MR GILLET'S SYSTEM OF FEEDING.—THE DAMAGING FEATURES IN THAT SYSTEM.—SHOULD CATTLE BE FED WHILE GROWING?—WEIGHT MORE SOUGHT AFTER IN AMERICA THAN QUALITY.—THE PERCENTAGE OF AMERICAN BEEF SUITABLE FOR EXPORTATION TO BRITAIN.—THE COST OF THE BETTER VARIETIES OF AMERICAN BEEF.

THE preceding chapter was devoted to that portion of American beef which is believed to be, in the main, unsuited to British markets; the present one shall refer to that which is regarded as palatable enough to beef-eating Britons, and which is likely to be the only variety of American beef that will have a chance of affording anything like a permanent profit to those who engage in its shipment. Of course a very distinct line cannot be drawn between that which is really *suitable* and that which is *unsuitable* for shipping to Britain; a wide indication only can be ventured upon. The very best quality of American beef hails from a well enough defined source; but after this comes a quantity

of slightly inferior beef, not wholly unsuited for shipping, which is grown here and there over a great range of country upon the bones of unusually well-cared-for common steers and low grades of exceptionally good quality. The best quality of beef is raised mostly in the States of Illinois, Kentucky, Ohio, and Indiana, each of the neighbouring States contributing a small quantity. Illinois undoubtedly takes the lead in regard to the gross quantity of first-class beef it produces; but it contains at the same time so many common cattle, that, with respect to the percentage of good beef to inferior, Kentucky stands fully as high. Ohio and Indiana are pretty nearly on a level. High grades—second, third, and fourth crosses between common cows and improved bulls, mostly shorthorns—are the producers of the “prime” beef of America, that which has been designated “first-class;” and between these high grades and the common cattle of the country there is a large number of cattle that have a sprinkling of improved blood in their veins, and that receive better attention than is general in America, and that yield a fair quality of beef, slightly inferior to the beef of high grades (about equal to third-rate British beef), but still not wholly unsuited for export to Britain; while a small proportion of the common cattle, the very finest of the common steers, yield beef that might pass in an emergency.

Regarding the quality of the best class of American beef there is a considerable difference of opinion. Brother Jonathan tells us that it can't be beat anywhere in the world; and even on the Eastern side of the Atlantic there

are a few who maintain that it is quite equal to the finest quality of beef the British Isles have ever produced. Notwithstanding all that has been said to the contrary, my firm opinion is that the best quality of American beef has no comparison whatever with the best quality of British beef. It must be placed on a level with second-class British beef, but a higher position it cannot claim. And my reasons for so thinking are easily explained. To begin with, the class of cattle which produce the best quality of American beef are decidedly inferior in almost every point to the best beef cattle of Britain. Their immediate ancestors on the female side were rough, coarse, big-boned, muscular cattle, far from well suited for the production of beef; and though the influence of the improved sires has filed away these coarse points considerably and engrafted many new qualities, still they display remnants of the characteristics of the original breed (or rather breeds) which seriously reduce the quality of their beef. They are still too big-boned, too clumsy about the head and neck, too narrow along the top, too flat on the rib, have too much muscle, and are unsatisfactory both in touch and quality. To be sure, every successive cross lessens the faults; but before they can all be hidden several generations must be built on the top of that now living. Supposing, however, that the best class of beef cattle in America and Britain were equally good in breeding and general characteristics, the manner in which cattle-feeding is carried on in America would of itself leave that country far behind Britain in regard to the quality of its best class

of beef. As previously stated, the finest quality, as well as the maximum quantity, of beef can be produced only by the animal being fed unvaryingly from its birth onwards; and while this principle is not observed in Britain nearly so generally as it ought to be, it is barely recognised in America at all. In Britain cattle-feeding has become a science; in America it is a work that may be executed in the most convenient, haphazard manner. The temperature and constitution of the animal receive no attention from the American farmer, neither does he take any heed whether or not his animals are supplied with food containing in proper proportions the commodities which form flesh, fat, bone, and muscle. When he wishes to fatten his cattle, he scatters on the field amongst them an abundance of Indian corn and a seasoning of salt, and leaves the rest of the fattening process to the animals themselves and to nature. It is the misfortune of the American farmer that nature has done so much for him; but, kind though it be, it does not satisfactorily accomplish all that is left to it in the feeding of cattle. It does not supply in the atmosphere, nor in any other shape, the ingredients which are lacking in Indian corn for the efficient feeding of cattle, neither does it always provide the fatling with that shelter which is desired to assist the daily fare in keeping up the animal heat.

To illustrate what is meant, brief reference may be made to the mode of feeding pursued by Mr John B. Gillet, Elkhart, Macon County, Illinois, whose immense herd of 2300 head has already been noticed at some length, and who has

for upwards of thirty years displayed as much care and intelligence in the management of his herd as any other man on the American continent. For several years back he has been receiving higher prices for his fat steers than most of his neighbours and fellow-American farmers, and it was from his herd that Mr Eastman, of New York, obtained those excellent samples of beef that electrified this country on their arrival nearly two years ago; so that the illustration selected is very favourable to the general system of cattle-feeding even among the most intelligent and most advanced of American farmers. Mr Gillet rears between 400 and 500 calves every year from shorthorn bulls and high grade cows, each calf being allowed to follow its dam; and thus, when weaned, or turned into the "stirkies' sta'" (as a broad Scot would say), the calf is usually as high in condition as it is desirable that a calf should be. But after that, instead of an endeavour being made to retain the calf beef, and to slowly and gradually add to it, the animal has to be contented with a very scanty living till it is approaching three years old. In a good grass season the summer food may be abundant, but in winter the foggage is invariably scarce, and, indeed, the animals have sometimes, as already stated, to scrape their daily pittance from beneath a covering of snow. In the autumn of their third year Mr Gillet's steers are turned on to full rations as feeding cattle, and for ten or twelve months are fed very liberally with Indian corn, which is given them in the open field as it grew in winter, and in the ear in troughs in summer. They take on flesh speedily while they are thus treated, especially during the summer

months ; and when they are shipped to the beef markets of Chicago or New York in the months of August, September, and October, they are indeed a very handsome lot of beef cattle, weighing from 1700 to 1900 lbs. live weight.

What is there, then, in this system of feeding that damages the quality of beef? The cattle are begun well and finished well ; but in the interval of nearly two years' duration, between their weaning and the autumn of their third year, they are neglected, or at least left to shift for themselves. Each of the two winters in this interval wears away a considerable portion of the fat laid on during the previous summer, leaving on the frame of the animal a quantity of strong, dry, shrivelled-up, ill-mixed flesh, which remains there and greatly reduces the value of the carcase. A few of the American farmers with whom I discussed the subject argued that to endeavour to lay flesh and fat upon an animal before it has reached its maximum growth, or nearly so, is perfectly useless, in fact, a decided mistake, for they held that the feeding stints the growth of the animal and impairs its constitution. Ideas like these are also occasionally expressed among British farmers, but that they are ill-founded there is not the slightest doubt. Unquestionably excessive feeding in youth both endangers the constitution and hinders the growth of an animal, but moderate and steady feeding does neither. On the contrary, it accelerates the growth of an animal, and increases the quantity and improves the quality of its beef. All animals cannot stand the same amount of pressing with food ; their constitutions must be watched, and the food applied accordingly.

Another wrong impression seems to have a footing among American farmers, and that is that fat cattle ought to be valued and graded by weight more than by any other characteristic. Their chief ambition seems to be to bring heavy cattle into the market, irrespective of their quality. It is very much easier, as a rule, to obtain good quality in a moderate-sized animal than in an exceptionally large one; and before American beef can claim equality with British beef the farmers of that country will have to lay aside their idea that weight is the all-important point, and recognise that quality is of more moment than size.

It must be mentioned that these remarks refer to the United States alone, and do not extend to Canada. I regret that my visit to Canada was too brief to enable me to speak authoritatively on stock matters there.

As to the quantity of beef suitable for exportation to Britain that is raised in America, it would be unsafe to venture upon a very definite indication. My own impression is that it is under 10 per cent. of the whole beef product of the country; and to support my idea I have the testimony of several well-known American authorities.

Americans are quick to take advantage of any means by which they can amass a few of the "almighty" dollars; and if there is money in this new trade, it may be relied upon that it will continue and grow at true American speed. At what price, then, can American beef suitable for shipment be sold in British markets? The very finest of beef steers, such as Mr Gillet's, cost at home about 7 cents per lb. of live weight, and the expense of transit to New York would

add, say, another half-cent per pound. This class of cattle would "dress," on the average, from 58 to 63 lbs. of beef for every 100 lbs. of live weight, which would bring the cost price of their beef in New York to from 11 cents to 12 cents, or from about $5\frac{1}{4}$ d. to 6d., per lb., leaving the offal and the hide to cover profits and slaughtering expenses at New York, and also the cost of transit from where the animals are fed to New York. Some hold that the hide and offal are sufficient for all these incidentals; but in many cases, it is feared, they will barely suffice. Transit across the Atlantic and commissions add other 3 cents, and thus the cost price of the best class of American beef, by the time it is exposed for sale in British markets, amounts to from $6\frac{3}{4}$ d. to $7\frac{1}{2}$ d. per lb. A slightly inferior class of cattle cost at home about $6\frac{1}{2}$ cents per lb. of live weight, which would bring their dressed beef in Britain to an average cost price of about $6\frac{3}{4}$ d. per lb. After this, again, comes a large number of second-class grades, which would "dress" from 55 to 58 lbs. of beef to every 100 lbs. of live weight. At home these cost from $5\frac{1}{2}$ to 6 cents per lb. of live weight, and thus in Glasgow or Liverpool their beef would cost from 6d. to $6\frac{1}{2}$ d. per lb. It will easily be seen from these figures that an average retail price in Britain of 7d. per lb. would not return the Americans a very handsome profit—that is, for the very finest quality of American beef.

CHAPTER XXXV.

STATISTICAL.

THE COST OF AMERICAN BEEF IN BRITAIN.

To indicate at a glance the prices at which the different varieties of American beef might be sold in British markets, the following tabulated statements have been prepared. The smaller items are grouped with the larger, only the "bones," so to speak, of the cost of beef-production in America, or, more properly speaking, the United States, being given. Averages have been struck with all possible care from the figures obtained in course of the inquiry and given in extended, but scattered, form in the foregoing chapters; and it may be explained that for convenience the American dollar has been reckoned as equal in value to four shillings of British money.

Average Texas, Kansas, and Colorado Steers, shipped direct from the Prairies.

Cost on the prairie in autumn, as $4\frac{1}{2}$ years
old, at 3 cents per lb. live weight—

1000 lbs.,	.	.	.	.	.	£6	0	0
Transit to New York,	.	.	.	.	.	2	0	0
Total cost,	.	.	.	.	.	£8	0	0

COST OF AMERICAN BEEF.

285

Percentage of dressed beef to live weight, 52.	
Cost of dressed beef per lb. in New York, leaving hide and offal to meet profits and costs at New York, ...	£0 0 3¼
Transit across the Atlantic, per lb., . . .	0 0 1½
Cost per lb. in Liverpool or Glasgow, . .	£0 0 5¼

Average Texas Steers, partly grain-fed.

Cost on the prairie in spring, as 3 years old, at 2 cents per lb. live weight— 850 lbs., ...	£3 8 0
Transit to Missouri or Illinois, or neigh- bourhood, <i>via</i> Kansas City or Chicago, . . .	2 2 0
Cost of five months' feeding—grass, 5s. per month; 30 bushels Indian corn, at 30 cents, ...	3 1 0
Total cost, ...	£8 11 0
Selling price as fat four-year-olds, at 4½ cents per lb. live weight—1050 lbs., . . .	9 9 0
Residue to feeder, ...	£0 18 0

Percentage of dressed beef to live weight, 53.	
Cost of dressed beef per lb. in New York, taking it for granted that hide and offal would cover all profits and costs, or nearly so, between the feeder and shipper, ...	£0 0 4
Transit across the Atlantic, ...	0 0 1½
Cost per lb. in Liverpool or Glasgow, . .	£0 0 5½

Choice Texas, Kansas, and Colorado Steers, partly grain-fed.

Cost on the prairies in spring, as 3-years old, at $2\frac{1}{2}$ cents per lb. of live weight—900 lbs., ...	£4 10 0
Transit to Missouri, Illinois, or neighbourhood, <i>via</i> Kansas City or Chicago, ...	2 2 0
Cost of six months' feeding—grass, 15s.; Indian corn, 40 bushels, at 30 cents, ...	3 3 0
Total cost, ...	£9 15 0
Selling price as fat steers rising four years old, at $4\frac{3}{4}$ cents per lb. of live weight—1100 lbs., ...	10 9 0
Residue to feeder, ...	£0 14 0

Percentage of dressed beef to live weight, 54.

Cost of dressed beef per lb. in New York, ...	£0 0 $4\frac{1}{4}$
Transit across the Atlantic, per lb., ...	0 0 $1\frac{1}{2}$
Cost per lb. in Liverpool or Glasgow, ...	£0 0 $5\frac{1}{4}$

Average "Common" Steers, grain-fed for one winter.

Cost in autumn, when $3\frac{1}{2}$ years old, at 3 cents per lb. of live weight—1050 lbs.—including a fraction for carriages, ...	£6 10 0
Cost of six months' feeding—70 bushels of Indian corn, at 30 cents, ...	4 4 0
Total cost, ...	£10 14 0
Selling price as fat four-year-olds, at $4\frac{3}{4}$ cents per lb. of live weight—1250 lbs., ...	11 17 6
Residue to feeder, ...	£1 3 6

Percentage of dressed beef to live weight, 54.

Cost of dressed beef per lb. in New York, . £0 0 4¼

Transit across the Atlantic, ... 0 0 1½

Cost per lb. in Liverpool or Glasgow, . £0 0 5¾

*Choice "Common" and Secondary Grade Steers, grain-fed
for one winter.*

Cost in autumn, when 3½ years old, at 3½
cents per lb. live weight—1100 lbs., . £7 14 0

Cost of six months' feeding—85 bushels
Indian corn, at 30 cents, ... 5 2 0

Total cost, ... £12 16 0

Selling price as fat four-year-olds, at 5¼
cents per lb. live weight—1300 lbs., . 13 13 0

Residue to feeder, ... £0 17 0

Percentage of dressed beef to live weight, 56.

Cost of dressed beef per lb. in New York, . £0 0 4½

Transit across the Atlantic, ... 0 0 1½

Cost per lb. in Liverpool or Glasgow, . £0 0 6

Average Grade Steers, grain-fed for one winter.

Cost in autumn, when 3½ years old, at 4
cents per lb. of live weight—1200 lbs., . £9 12 0

Cost of six months' feeding—85 bushels of
Indian corn, at 35 cents, ... 5 19 0

Total cost, ... £15 11 0

Selling price as fat four-year-olds, at 5¾
cents per lb. of live weight—1450 lbs., . 16 13 6

Residue to feeder, ... £1 2 6

Percentage of dressed beef to live weight, 58.

Cost of dressed beef per lb. in New York, . £0 0 4 $\frac{3}{4}$

Transit across the Atlantic, per lb., . . . 0 0 1 $\frac{1}{2}$

Cost per lb. in Liverpool or Glasgow, . . . £0 0 6 $\frac{1}{4}$

*Choice Grade and Pure-bred Steers, partly grain-fed for
eighteen months.*

Cost in autumn, as 2 $\frac{1}{2}$ or 3 years old, at

5 $\frac{1}{4}$ cents per lb. live weight—1350

lbs., ... £14 3 0

Cost of six or seven months' feeding—90

bushels Indian corn, at 35 cents, . . . 6 6 0

Total cost, . . . £20 9 0

Selling price as fat steers, 3 or 3 $\frac{1}{2}$ years

old, at 6 $\frac{3}{4}$ cents per lb. live weight

—1630 lbs., ... 22 0 0

Residue to feeder, . . . £1 11 0

Percentage of dressed beef to live weight,

barely 60.

Cost of dressed beef per lb. in New York, . £0 0 5 $\frac{1}{2}$

Transit across the Atlantic, ... 0 0 1 $\frac{1}{2}$

Cost per lb. in Liverpool or Glasgow, . . . £0 0 7

It may be explained that, in most parts where these last two classes of cattle are fed, Indian corn costs a little more than farther west.

THE TOTAL IMPORTS OF AMERICAN MEAT SINCE
OCTOBER 1875.

By favour of the Hon. Edward Young, Chief of the Bureau of Statistics at Washington, I am enabled to give the following table, showing the total imports of fresh meat from America to Great Britain since the commencement of the dead-meat trade in October 1875 :—

	BEEF.		MUTTON.	
	Weight.	Value.	Weight.	Value.
1875.	lbs.	Dols.	lbs.	Dols.
October . . .	36,000	2,800	...	...
November . . .	36,000	2,800	...	...
December . . .	134,000	10,700	...	...
1876.				
January . . .	162,000	12,700	...	...
February . . .	292,000	24,000	...	...
March . . .	302,000	24,300	...	...
April . . .	256,000	106,400	...	...
May . . .	1,012,000	77,400	...	...
June . . .	1,140,000	88,000	...	...
July . . .	1,170,200	101,250	...	...
August . . .	1,365,000	134,811	...	...
September . . .	2,451,550	218,005	...	...
October . . .	2,719,685	239,038	...	...
November . . .	4,193,980	391,402	...	...
December . . .	3,774,480	325,905	...	...
1877.				
January . . .	2,572,450	255,430	...	...
February . . .	4,953,610	421,457	41,280	4,310
March . . .	6,707,855	590,085	118,045	12,358
April . . .	8,412,500	820,997	169,043	17,648
May . . .	7,266,200	696,905	21,000	2,164
June . . .	3,623,480	357,238	...	...
July . . .	3,120,015	315,305	...	...
August . . .	1,920,441	186,411	...	...
September . . .	3,369,539	347,373	...	...
TOTALS, .	60,990,985	5,750,712	349,368	36,480

CHAPTER XXXVI.

THE PROBABLE EFFECT OF AMERICAN MEAT IMPORTATIONS ON BRITISH FARMING.

THE ANXIETY OF LAST SPRING CONSIDERABLY ALLAYED.—THE CAUSE OF THAT ANXIETY.—FIRST IMPRESSIONS ERRONEOUS.—AMERICAN MEAT IMPORTATIONS NOT LIKELY TO PROVE DISASTROUS TO BRITISH FARMING.—ITS INFLUENCE, HOWEVER, VERY IMPORTANT.—FARMERS MUST KEEP THEIR "WEATHER-EYE" OPEN.—THE REPEAL OF THE CORN LAWS AND REFRIGERATORS COMPARED.—WHAT THE FORMER IS TO BRITISH GRAIN-RAISING THE LATTER WILL BE TO BEEF-RAISING.—BRITISH BEEF ALREADY AT ITS MAXIMUM VALUE.—AMERICAN FARMERS UNPREPARED FOR THE EXPORT TRADE AT PRESENT.—THE SCOPE FOR IMPROVEMENT IN AMERICA.—THE PROBABLE IMPROVEMENT IN TEN YEARS.—WHAT THAT IMPROVED BEEF MAY BE SOLD AT IN BRITAIN.—A HANDICAP RACE BETWEEN GREAT BRITAIN AND THE GREAT WEST.—THE CONCLUSION I HAVE ARRIVED AT.—IMPORTS OF LIVE STOCK.—IMPORTS OF DEAD MEAT.—MARKET OVERDONE.—A SHIPPING FIRM IN BANKRUPTCY.—THE QUALITY OF BEEF BEING IMPORTED THIS WINTER (1877).—WRONG IMPRESSIONS CORRECTED.

JUST as surely as the newly introduced American, who was always glad to make my acquaintance, would mutter in the second breath, "How do you like our country, sir?" my good Scottish farmer friends, since my return, have pointed their first questions in something like this fashion: "Well, is that American beef to do us any harm?" "Will the Americans drive us out of our own markets altogether?" It is evident that, though farmers and others interested in

land still watch the American beef trade with some concern, the anxiety on the subject has been greatly allayed since last spring, and I think there was good reason for considerable modification. It is my opinion that the American dead-meat trade will not be nearly so injurious to British farming as it was at one time feared it would be, or rather that the immediate effect will not be nearly so serious as was anticipated. During the spring months of this year (1877) the alarm was very great and general; and while some enthusiasts predicted all but wholesale ruin, the majority of writers and speakers told those who had long leases still to run that, at any rate, they might expect to suffer very heavy losses—the backs of many of these tenants would be driven to the wall, was a favourite expression. These alarming statements were made under the impression that American beef of really good quality could be retailed in this country at a profit to shippers at about 5d. per lb.; and had that belief really been well founded, there was indeed serious cause for alarm. But any one who has glanced at the figures in the last two chapters will easily see that this impression was entirely erroneous. Some, however, may ask, Can these figures be relied on? Well, as to that, it can only be said that they are the result of four months' impartial inquiry, directed very largely to the money part of the question; for undoubtedly that will be the ruling element in this as in every other similar trade.

Though there is no probability that the importation of American meat will prove disastrous to the farming interest of the British Isles, still it is certain to exercise a very

important influence in the returns from beef-raising in this country. It is not likely to reduce the production of beef to a non-paying branch of farming; nor need there be any grave fears that it will "drive the back of many a tenant to the wall" that happens to have a long lease to run: if these are not rack-rented, they will manage to live yet; but the fact remains that a new opponent, not death-bearing, but formidable, and gradually becoming more so, has come into the field. It is therefore a matter of the greatest possible importance that farmers should watch carefully every movement of that new opponent, and use every endeavour to meet him advantageously in a fair open field. What the repeal of the Corn Laws has been to the cultivation of grain in this country, the invention of refrigerators is likely to be to the raising of cattle. That great repeal movement regulated the prices of grain in our home markets, or at least prevented them from reaching an exorbitant point; and undoubtedly the importation of foreign dead meat, which has been rendered possible by the invention of the preservation system now being used in transmitting American beef across the Atlantic, will ultimately have a similar effect on our home beef markets. All the foreign competition we may expect in our beef markets is not likely to reduce the retail price of our native beef beneath a figure that ought to be fairly remunerative to its producers—say, from 72s. to 80s. per cwt., or from 7½d. to 8½d. per lb., for the best qualities, and from 62s. to 70s. per cwt., or from about 6½d. to 7½d. per lb., for second-rate beef; but it would be unsafe for farmers to calculate upon beef rising to such high

figures as it has reached several times during the past few years. In all probability beef has reached its maximum value in British markets; indeed, he would be a little venturesome who would tell us that the top prices for beef in the home markets in 1887 will be as high as they are at the present time. It need hardly be expected that, ten years from now, the average price of beef will be relatively as high as to-day, for by that time the foreign competition will to a certainty be far more powerful than it is now or can be for some time.

Fortunately for those whose long leases have only recently been renewed, the surplus supply of beef in America that is suitable for consumpt in this country is not yet so large as to make the immediate influence of the importation trade very manifest on our beef markets; but then the means of production in that country are practically unlimited as far as food is concerned, and are in the meantime regulated only by the material at command for effecting the requisite improvement in the native stock. There are no permanent reasons why America cannot produce as good beef as either England or Scotland. It can grow the food, if it only had the cattle to make a proper use of it. These it will by-and-by have; and when Americans come to see the advantage of careful, liberal, and systematic feeding, it may be relied on that they will not be slow to adopt it. The improvement in the course of eight or ten years will in all probability be wonderful; and by that time, if the present high price of beef continue, we may expect that American beef of really good quality will be poured in upon us in large and steady

supplies. No one anticipates that the cost of beef-production in America will increase to any appreciable extent for more than ten years to come; and if the anticipation is well founded, which I think it is, this improved beef of the future may be offered in our markets at from 6d. to 7d. per lb. The improvement of the cattle of America and the system of cattle-feeding is only a matter of time; and when that has been achieved, the competition in the beef markets of this country will in the main be a handicap race between the British Isles and the Great West—the former having a start to the extent of from 1d. to 1½d. per lb.

My conclusion, therefore, is that, in the meantime, there is no real cause for alarm; but that our farmers may take it for certain that henceforth the beef markets of Britain will be open to foreign competition exactly as our grain markets have been for thirty years, and that by-and-by the foreign influence in the one will be as great as in the other.

It will be observed that the weekly imports of dead meat are increasing very largely, and also that the shipments of live cattle are far from insignificant. Live animals can be speculated with for a little after their arrival, and consequently it is not so easy to ascertain the exact financial success of this enterprise as of the importation of dead meat, where a final sale has to be effected at once. One would think, however, that the shipping of live cattle across the Atlantic during the winter season would be anything but a safe undertaking. The dead-meat trade is certain to get a thorough trial this winter (1877-78), and the chances are that,

as in spring, it will be overdone. The weekly arrivals of fresh meat at Liverpool just now (October) from the United States and Canada average about 4000 quarters of beef and 20 carcases of mutton; and it is stated that these large supplies overstocked the market to such a degree that "sides of prime quality were disposed of at the very low rate of 4d. per lb." That is, indeed, a very low rate; and if these sides were anything like what they are described as being, those who shipped them will look aghast on receiving their returns. The loss must be at least from 1d. to 1¾d. per lb. If the Americans are not more cautious, they must undoubtedly suffer heavy losses; for it is very plain that only a small quantity of American beef of such quality as that which is now being imported will find sale in this country at the present time (or indeed at any time) at anything above a sacrifice.

It is important to observe that one of the firms who have been most largely engaged in the shipping trade, both of live cattle and dead meat—Messrs Samuel Brothers, of New York—have become bankrupt, and that their collapse has been brought about mainly by heavy and continuous losses in the export trade. Probably this is the beginning of that "thinning-out" process which was jocularly referred to by one of the principal shippers while the writer was discussing the subject with him in New York City! At any rate, it need surprise no one that the failure has taken place, for beyond all doubt the enterprise as yet has not been a profitable one to those engaging in it. Too many have rushed into it, and there has been by far too little caution and too

much enthusiasm—never-failing characteristics of American enterprises.

As yet very little of the best quality of American beef has been imported this season, and until the demand improves somewhat, which it probably may during winter, only small quantities of it will be attempted. The beef that is now being imported is of second quality, or the beef of second-rate grades and finer lots of common steers picked up in the stockyards of Chicago and New York, and elsewhere, and raised and fed mostly in the States of Illinois, Kentucky, Ohio, and Indiana and neighbouring States. In New York these grades cost from 8 to 9 cents per lb. of dressed beef, which would represent a cost price in Glasgow or Liverpool of from 5½d. to 6d. per lb. of dressed beef. These facts were stated in a previous chapter, but they are repeated here in consequence of the existence of a wrong impression in some quarters as to the quality of the beef that is now being imported from America, and as to what part of that country it really comes from, which latter point, of course, very significantly affects the cost price in America of the imported beef. A correspondent, writing in a recent issue of an important English newspaper, says that the quality of the imported American beef has been "entirely changed from last year, because the full-grown, well-fed oxen that were then available have been exhausted, and the steers that are now grown are not fit for market. The beef of Texas cattle is the only kind that has been brought *via* New York for several months." Now, this is the very season of the whole year (October) that the "full-grown, well-fed" oxen of America are

available to the butcher in the largest numbers, and probably in no previous year in the history of the Union has there been a larger number of really good fairly-fed oxen in the States than this autumn. The reason why the beef of those well-fed oxen has not been coming to this country this season is simply because it pays better to keep it at home. The latter statement of the correspondent referred to is as ill-founded as his first. All other varieties of American beef will fail before the beef of Texas cattle will have its trial. If any American beef of a lower grade than that of secondary cross and choice "common" steers has been offered in British markets, it has been that of partially corn-fed "common" steers, which is a degree superior to the beef of Texan steers, and which, as already stated, may be landed in Liverpool or Glasgow at a cost of $5\frac{1}{2}$ d. to $5\frac{3}{4}$ d. per lb.

CHAPTER XXXVII.

WHAT BRITISH FARMERS MUST DO TO DEFEND THEMSELVES.

THE FOREIGN INVASION DEMANDS A VIGOROUS DEFENCE.—A PASSIVE RESISTANCE NOT SUFFICIENT.—THE BEST QUALITIES OF BRITISH BEEF SAFE FROM HARM.—THE INFERIOR BEEF MUST MEET THE FOREIGN COMMODITY.—THE AIM OF FARMERS OUGHT THEREFORE TO BE PLAIN. — GOOD BEEF ALONE SHOULD BE RAISED. — HOW THIS IS TO BE ACCOMPLISHED.—ILL-BRED CATTLE MUST FIRST BE SUPPLANTED.—THE INFLUENCE OF GOOD BULLS IN IMPROVING STOCK.—STRONG TEMPTATIONS HELD OUT FOR THE USE OF BAD BULLS.—THE PERCENTAGE OF MALE CALVES KEPT AS BULLS.—HOW SMALL FARMERS MIGHT OBTAIN GOOD BULLS.—A BETTER SYSTEM OF FEEDING ALSO NECESSARY IN MANY CASES.—A FEW HINTS ON FEEDING AND GENERAL TREATMENT OF BEEF CATTLE.

THOUGH the immediate effect on British farming of the importation of American beef is not likely to be so very serious as at one time it threatened to be, still it will exercise an influence sufficiently powerful—an influence, too, that will be steadily growing—to demand that British farmers must strain every nerve to fortify their defence against the invader. A passive resistance will not suffice—a vigorous offensive movement must be made. No one who looks into the matter for a moment can fail to see that henceforth the foreign consignment will be an important element in British beef markets. The foreign “cut” will

always be there, ticketed at, perhaps, a penny or a halfpenny per pound less than third-rate native beef; and with many the financial advantage will to a certainty give the choice to the foreign article. The "prime" beef of England and Scotland, which has its own particular patrons, and which just now brings about £4, 4s. per cwt., will not be disturbed by the current from abroad, and will find its way as quietly as before into British households; and, again, it is believed that, at any rate for many years, till the imported beef improves very greatly in quality, that large class of British beef which comes so close upon the "prime" beef, and which is raised upon the frames of well-bred and carefully-fed young crosses, and which is just now worth from £3, 18s. to £4 per cwt., will command an uninterrupted sale at very nearly the present prices. And thus the imported beef must come into competition mainly with the third-rate and inferior varieties of British beef—the beef, for instance, of cows, bulls, and ill-bred, ill-cared-for steers and heifers—which at present sells at from £3, 10s. to £3, 15s. per cwt. The whole of the American beef that may be imported is not likely to be equal in quality even to third-rate British beef; but then in all probability there will be a difference of a halfpenny or a penny per pound in the retail price in favour of the foreign article (at least of that portion which will be inferior in quality to third-rate British beef), which in many cases may be sufficient to secure sale for it in preference to the slightly higher-priced, but also slightly superior, home-grown article.

It is therefore plain that the aim of every farmer ought to

be to produce none but first-class beef, or at any rate to raise a very much larger quantity of really good beef than he does at present. Of course, the beef of cows and bulls cannot be improved to any great extent: their beef must always be of inferior quality; but as to the "ill-bred, ill-fed steers and heifers," they are capable of improvement, while the means by which that much-to-be-desired improvement might be accomplished are easily indicated. The first step must be to improve the breeding of those ill-bred animals, or rather to supplant them by a class of animals much better bred—far superior in quality, finer in the bone, shorter in the legs, broader along the back, better sprung in the rib, and much neater about the head and neck.

It is a pretty well established fact that the sire has a stronger influence than the dam in improving the progeny; and therefore farmers, while losing no opportunity of bettering their stock of cows, should above everything be most careful to secure really good bulls to breed from. It must be admitted that during the past eight or ten years farmers have had strong temptations thrown in their way to use many bulls of inferior character, by the enormous number of bulls of that stamp that have been offered for sale annually both in England and Scotland. The well-deserved fame which the fashionable shorthorn obtained in the British Isles many years ago as the most powerful of all agencies in the improving of the common cattle stock of the country, and also as a profitable farm animal itself, created throughout the whole kingdom an extraordinary demand for bulls of this breed. This in turn induced shorthorn-

breeders to exercise too little "selection" in the retaining of bulls—or, in other words, induced them to retain far too many of their male calves as bulls. I cannot speak so confidently as to England and Ireland (though I believe the same evil exists to almost as great an extent in both); but I am convinced that I am within the mark in saying that, of all the male shorthorn calves dropped in Scotland every year, at least 90 per cent. are retained as bulls. Now, is it natural to suppose that such a large percentage could really be well suited as agents for the improving of their kind? And it is thus that so many inferior young bulls pass through sale-rings every year, selling at from 15 to 25 guineas a-head. The more intelligent and better informed farmers pay no heed to these "weeds," but still it is indeed a miserable creature that fails completely to find a purchaser. If the supply of good bulls were really inadequate, there would be some excuse for using these inferior animals. But then it is not so. If one-fifth of all the shorthorn bulls now employed throughout the country (the worst fifth, of course) were "weeded" out, and the other four-fifths used a little more extensively, the result could not fail to be advantageous to every one concerned. And the same remarks apply with equal force to polled bulls, which are becoming more popular in the northern counties of Scotland than they have been for many years. The farmer who formerly paid 25 guineas for an inferior bull would be consulting his own best interests by disbursing 10 guineas more in order to bring home to his herd an animal that would leave it better for his having been there; or (which is the same thing) if, in

place of sending his cows to the man who has an inferior bull and charges only 10s. or £1 a-head, he were to send them to the man who has the good bull and charges £2. If by this he can add £2 a-head to the selling price of his two-year-olds, which is no stretch of the imagination, his extra price or fee would be well invested.

In many parts of the country, where the holdings are small, there are no farmers that are able, individually, to spend so much money on one animal as 35 or 40 guineas. The difficulty in many of these cases might be overcome by a few of the holders combining together and purchasing a really good bull in shares. Besides improving their own stocks, they might realise a little from their neighbours, who, now that American beef has begun to disturb the sale of our inferior varieties of beef, would no doubt be willing to pay a few extra shillings for the use of a superior bull. But should these small holders be unable or fail to do anything for themselves in this way, their proprietors would do well to assist them; for it must be remembered that it is the quality of beef raised by these small holders, who are unable to purchase or breed good stock, that the foreign competition will affect first; and, indeed, unless something be done by some one to improve the cattle on these holdings, it is difficult to understand how, in the face of growing manure and labour bills and other outlays, and stationary grain and beef returns, many of the present rents can continue to be paid. Landlords could materially assist these small tenants, and yet suffer no loss themselves—they would gain indirectly—by purchasing bulls of a sufficiently good class, and

stationing them at convenient farms or crofts, and hiring them at a moderate fee to the small tenants, still retaining the animals as their own property. It is within my own knowledge that, in several parts of Scotland, the desired, or rather necessary, improvement can never be effected except in some such way as this.

But the breeding of a better class of cattle alone will not suffice. There is also great need for improvement in the system of feeding pursued by many farmers. At present there is considerable waste of food and time, arising from a want on the part of farmers of any knowledge of the essential ingredients which the food given to cattle ought to contain, and from a want of care and attention in feeding unvaryingly and systematically. Continuous and intelligent feeding from the calfhood onwards is the only means by which the greatest quantity and best quality of beef can be put upon an animal; and the nearer farmers approach to this ideal, the larger will be their profits, and the better they will be able to defend themselves from the invasion from America. Calves should receive a liberal supply of milk for at least five months, with cake or some equivalent added, or substituted for a portion of the milk, towards the latter end of that period; and then, when they are weaned, the greatest care ought to be taken not to allow them to fall away, or to allow their constitutions to be impaired by the change of food, which for some time should be of a very nourishing kind. During the first winter they need not be fed too highly—just liberally enough to retain the calf flesh, keep the animal in a healthy growing condition, and gradually

add a little beef. Then, at the first of summer, they ought to be kept in the house, even though a little artificial food should have to be given them, till the grass has advanced sufficiently to maintain them in a progressive state; and in the same way, at the end of the grass season, they should be housed as soon as the grass begins to fail or the cold to interfere with their feeding. The loss that farmers in this country sustain through turning their cattle too soon on to the grass in spring or beginning of summer, and leaving them too long upon it in autumn, is very great indeed, and demands that strenuous efforts should be made to remedy the evil. House-feeding must be continued longer in spring, even if artificial food should have to be used a little; and, to tide over the interval between the grass and turnips and straw seasons, much larger quantities of tares and such crops ought to be grown, especially in Scotland, where there is less provision made for this short season of cold and hunger than in England. It sometimes takes a month of liberal house-feeding to replace what has been worn away by the half-starvation of a fortnight on the open field. Cattle would make more progress in a comfortable house, on little more than half-feed, than out on an exposed field during cold weather, even if they should have all the meat they could consume. And in addition to the waste of time, labour, and food, this "wearing away" process, as previously noticed in referring to the American system of feeding, has a very injurious influence on the quality of the beef, while it also, in many cases, weakens the constitution of the animal. In the majority of cases it would probably

be advisable for the ordinary farmer to feed off his cattle at two years old ; and in this case the feeding during the last winter ought to be both most liberal and skilful. The temperature and constitution of the animals ought to receive constant attention, and every animal ought to be fed exactly according to what its constitution can bear. They ought to be cleaned, or "groomed," more frequently than they are in general, and so also must they be allowed longer and more regular periods of rest.

The questions of byre, box, and court feeding can hardly be entered upon here ; but it may be remarked that the feeding-house ought to be kept clean and well ventilated, but free from draughts. For about half the winter 100 lbs. of turnips are not too many for each animal per day ; but during the last two months of its feeding it ought not to have more than 80 or 85 lbs. of turnips, and 4, 5, or 6 lbs. of artificial stuffs, each in two meals per day, according to the constitution and relative condition of the animals. A mixture of good linseed-cake or cotton-cake and grain—say oats and Indian corn, and perhaps beans, or locust-beans, in equal parts—forms one of the best feeding-mixtures any farmer could desire. In a mixture of grain and either of many kinds of cake there is too little oily matter ; but in linseed-cake all that is necessary is supplied. There is little doubt that the general body of farmers, with considerable advantage to themselves, might use a great deal more artificial food than they do, and thus spread their turnips over more ground, so to speak ; for at present turnips have too heavy a share of the feeding allotted to them ; while, by

the using of larger quantities of cake and other artificial food, the value of the manure made by the feeding cattle will be considerably enhanced. The "soiling" system—*i.e.*, feeding in the house during summer on cut grass and artificial food—ought also to be pursued more largely; for where there are half-covered courts it has been found to pay splendidly, and then summer is the season of the year during which there will be least foreign competition in the beef markets. In concluding this part of the subject I would sum up my advice to farmers who breed and feed cattle thus—keep few, keep good, keep well.

CHAPTER XXXVIII.

WHAT SCIENCE SAYS TO THE CATTLE-FEEDER.

LIEBIG'S DISCOVERY OF THE CONSTITUENTS OF FOOD.—BONE-FORMERS AND FLESH-FORMERS.—WHAT THEY CONSIST OF.—RESPIRATORY COMPOUNDS.—HOW THE FEEDING VALUE OF A FOOD IS RECKONED. PROFESSOR TANNER'S TABLE, SHOWING THE FEEDING VALUE AND COMPOSITION OF CERTAIN KINDS OF FOOD.—DR VOELCKNER'S SUMMARY OF THE USES OF THE VARIOUS CONSTITUENTS OF FOOD.—DR ANDERSON'S TABLE AS TO THE COMPOSITION AND VALUE OF ALL THE VARIETIES OF FOOD IN ORDINARY USE.—THE RELATIVE FEEDING QUALITIES OF SEVERAL VARIETIES OF ROOTS AND GRASSES.—THE IMPORTANCE OF THE MANURIAL VALUE OF DIFFERENT KINDS OF FOOD.—MR LAWES'S TABLE AS TO VALUE OF THE MANURE LEFT BY SEVERAL KINDS OF FOOD.

As an appendix to the foregoing practical recommendations, a brief *résumé* may be added of the lessons science has already discovered to the cattle-feeder. Numerous experiments have been made all over the country with the view of establishing the relative value of the various kinds of food usually given to cattle by British farmers; and as many important lessons may be learned therefrom, some of the results are produced here.

According to Liebig, all food consists of two parts—the organic and inorganic, or that which is capable of being consumed by heat and that which is not. To reverse the order, the latter parts are called the *ash* of food, and are

made up of insoluble earthy matters, mainly phosphate of lime and magnesia, or "bone-formers," and of soluble saline substances, such as the chloride of potassium and sodium, the sulphates of soda and potash, or the substances which supply the mineral constituents to the blood and juices of the animal. The organic parts—albumen, gluten, casein, starch, gum, pectine, sugar, oil, and fibre—are divided into two distinct classes of substances, the nitrogenous and non-nitrogenous. The former substances are familiarly known as "flesh-formers," from the fact that they supply flesh to the animal, and replace the worn-out tissues—a process perpetually taking place in the animal as well as the human system. These flesh-formers, it may be noted, consist (for cattle and all herbivorous animals) of vegetable albumen, vegetable casein, and vegetable fibrine; and they obtain the name nitrogenous owing to nitrogen, along with carbon, oxygen, and hydrogen, being present in all these three elements. The non-nitrogenous parts are sugar, gum, starch, fat, and pectine, and are named as above from the fact that carbon, oxygen, and hydrogen are present in all, without nitrogen. Their part in the feeding of an animal is to promote respiration and keep up animal heat, and hence they are often called "respiratory compounds."

The antiquated notion that the value of a food depended mainly upon its supply of "flesh-formers" has been proved to be erroneous. Professor Tanner declares, in his admirable treatise "*On the Comparative Value of Different Kinds of Food*," that neither the proportion of nitrogenised nor non-nitrogenised matter in a food regulates the increase

of meat; that "the addition of these two component parts does not represent the meat-producing power in a food;" and that "the *combined* use of a fat-producing food with a flesh-producing food produces almost double the quantity of meat which would result from their use when separated from each other."

The same authority has arranged a table showing the "proved value and percentage" of several kinds of food, which deserves a place here. It may be explained that the column headed "as proved" is meant to indicate how many pounds of food must be consumed to produce a pound of meat: thus the consumption of 6 lbs. of barley should produce 1 lb. of meat, and so on:—

MATERIAL.	COMPOSITION.			FEEDING VALUE.	
	Non-nitrogenised matter. Per cent.	Nitrogenised matter. Per cent.	Water. Per cent.	As proved.	Per cent.
Barley	56.000	13.00	14.83	lbs. 6 to 1	16.70
Oats	55.500	13.60	12.80	7 to 1	14.30
Beans	48.500	23.30	14.80	8 to 1	12.50
Peas	50.000	23.30	14.10	8 to 1	12.50
Linseed Cake	13.520	28.56	8.60	5 or 6 to 1	16.70
Linseed Cake and } Peas, equal parts }	31.760	25.93	11.30	4½ to 1	22.20
Rape Cake	11.300	33.70	6.80	6 to 1	16.70
Cotton Cake	30.400	42.90	7.90	6 to 1	16.70
Clover Hay	40.000	9.30	14.00	12 to 1	8.30
Swedes	8.474	1.44	89.00	150 to 1	0.66
Mangolds	8.190	1.81	86.00	150 to 1	0.66
Carrots	10.000	1.50	85.00	160 to 1	0.66

Another well-known authority on food and kindred sub-

jects, Dr Voelckner, gives the following interesting summary (in his valuable paper on "The Chemistry of Food") of the uses of the various constituents of food:—

"1. The earthy substances contained in food, consisting chiefly of lime and magnesia, present the animal with the materials of which the bony skeleton of its body principally consists. They may be called, therefore, bone materials.

"2. The saline substances—chloride of sodium and potassium, sulphate and phosphate of potash and soda, and some other mineral matters occurring in food—supply the blood, juice of flesh, and various animal juices, with the necessary mineral constituents.

"3. Albumen, gluten, legumin, and other nitrogen-containing principles of food, furnish the animal with the materials required for the formation of blood and flesh. They are therefore called flesh-forming substances.

"4. Fat and oily matters of the food are employed to lay on fat, or to support respiration and animal heat.

"5. Starch, sugar, gum, and a few other non-nitrogenised substances, consisting of carbon, hydrogen, and oxygen, are used to support respiration (hence they are called elements of respiration), as they produce fat when given in excess.

"6. Starch, sugar, and other elements of respiration alone cannot sustain the animal body.

"7. Albumen, gluten, or any other albuminous matter alone does not support the life of herbivorous animals.

"8. Animals fed upon food deficient in earthy phosphates, or bone-producing principles, grow sickly, and remain weak in the bone.

"9. The healthy state of an animal can only be preserved by a mixed food, which contains flesh-forming constituents as well as heat-giving principles, and earthy and saline mineral substances in proportion, determined by experience, and adapted to the different kinds of animals, or to the purposes for which they are kept."

The following table, prepared by Dr Anderson, shows the composition of almost all the varieties of food commonly used in the feeding of cattle. In a few cases it will be seen that the respiratory and fibrine elements have not been separated; while in some instances the oily matter present is so small as not to be worth specifying:—

MATERIAL.	Nitrogenous Compounds.	Oil.	Respiratory Compounds.	Fibre.	Ash.	Water.
Decorticated Earth-Nut Cake	44.00	8.86	19.34	5.13	14.05	8.62
" Cotton Cake	41.25	16.05	16.45	8.92	8.05	9.28
Poppy Cake	34.03	11.04	23.25	11.33	13.79	6.56
Teel, or Sesamum Cake	31.93	12.86	21.92	9.06	13.85	10.38
Rape Cake	29.75	8.63	38.72	7.30	8.65	6.95
Dotter Cake	29.00	7.99	27.04	16.12	12.59	7.26
Tares (home grown)	28.57	1.30	58.64		2.50	8.99
Linseed Cake	28.53	12.47	35.78	6.32	6.11	10.79
Rubsen Cake	26.87	11.00	31.47	16.95	8.00	5.71
Tares (foreign)	26.73	1.59	53.04		2.84	15.80
Earth-Nut Cake (entire seeds)	26.71	12.75	45.69		3.29	11.56
Niger Cake	25.74	6.58	42.18	11.15	8.12	6.23
Beans (65 lbs. per bushel)	24.70	1.59	54.51		3.36	15.84
Lentils	24.57	1.51	58.82		2.79	12.31
Linseed	24.44	34.00	30.73		3.33	7.50
Grey Peas	24.25	3.30	57.99		2.52	11.94
Foreign Beans	23.49	1.51	59.67		3.14	12.21
Cotton Cake (with husk)	22.94	6.07	36.52	16.99	6.02	11.46
Pea-Nut Cake	22.25	7.62	30.25	26.97	3.71	9.20
Sunflower Cake	21.68	8.94	19.05	33.00	9.33	8.00
Hempseed Cake	21.47	7.90	22.48	25.16	15.79	7.21
Kidney Beans	20.06	1.22	62.46		3.56	13.00

MATERIAL.	Nitrogenous Compounds.	Oil.	Respiratory Compounds.	Fibre.	Ash.	Water.
Maple Peas	19.43	1.72	63.18		2.04	13.63
Madia sativa (seed)	18.41	36.55	34.59		4.13	6.32
Clover Hay (mean of differ- ent species of clover) . . . }	15.81	3.18	34.42	22.47	7.59	16.53
Rye	14.20	...	81.51	2.47	1.82	14.66
Bran	13.80	5.56	61.67		6.11	12.85
Oats	11.85	5.89	57.45	9.00	2.72	13.09
Fine Barley Dust	11.49	2.92	71.41		2.67	11.51
Wheat	11.48	...	73.52	0.68	0.82	13.50
Bere	10.25	...	62.85	10.08	2.60	14.22
Hay (mean of different grasses) }	9.40	2.56	38.54	29.14	5.84	14.30
Barley	8.69	...	64.52	9.67	2.82	14.30
Coarse Barley Dust	8.46	3.47	69.73		7.31	11.03
Rice Dust	8.08	2.95	69.22		8.12	11.63
Oat Dust	6.92	3.21	72.86		7.70	9.31
Winter Bean Straw	5.71	...	67.50		6.39	20.40
Carrot Bean	3.11	0.41	62.51	18.60	2.80	12.57
Potato	2.81	...	17.30	1.07	1.13	77.69
Carrot	1.87	...	7.91	3.07	1.11	86.04
Wheat Straw	1.79	...	31.06	45.45	7.47	14.23
Barley Straw	1.68	...	39.98	39.80	4.24	14.30
Oat Straw	1.63	...	37.86	43.60	4.95	12.06
Mangold-Wurzel	1.54	...	8.60	1.12	0.96	87.78
Cabbage	1.31	...	4.53		1.05	93.11
Turnips	1.27	0.20	4.07	1.08	1.71	91.47

Another authority (Thaer) gives the following proportional scale of the relative feeding qualities of several varieties of roots and grasses:—

“ 103 lbs. of hay are equal, in point of nutriment, to 200 lbs. of potatoes—460 lbs. of beet-root—350 lbs. of ruta bage (Swedes)—525 lbs. of radishes—266 lbs. of carrots—260 lbs. of white cabbage—90 lbs. of young clover—90 lbs. dry vetches—90 lbs. dry lucerne—90 lbs. dry sainfoin.”

A point of very great importance in connection with the feeding of cattle is the relative value which the different

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varieties of food impart to the manure made by the animal being fed. The difference in this value is far greater than many would be inclined to suppose; and in these days of high farming it is quite essential that everything possible should be done to enhance the value of farmyard manure, or rather to increase its efficacy as a stimulant and fertiliser. A series of experiments upon this important subject was conducted by Mr J. B. Lawes, and the results are embodied in the following table, "showing the estimated value of the manures obtained from the consumption of one ton of different articles of food, each supposed to be of good quality of its kind":—

Description of Food.	Value of Manure.
1. Decorticated Cotton Seed-Cake, ...	£6 10 0
2. Rape-Cake, ...	4 18 0
3. Linseed-Cake, ...	4 12 0
4. Malt Dust, ...	4 5 0
5. Lentils, ...	3 17 0
6. Linseed, ...	3 13 0
7. Tares, ...	3 13 6
8. Beans, ...	3 13 6
9. Peas, ...	3 2 6
10. Locust Beans, ...	1 2 6
11. Oats, ...	1 14 6
12. Wheat, ...	1 13 0
13. Indian Corn, ...	1 11 6
14. Malt, ...	1 11 6
15. Barley, ...	1 9 6
16. Clover Hay, ...	2 5 0
17. Meadow Hay, ...	1 10 0
18. Oat Straw, ...	0 13 6
19. Wheat Straw, ...	0 12 6
20. Barley Straw, ...	0 10 6
21. Potatoes, ...	0 7 0
22. Mangolds, ...	0 5 0
23. Swedish Turnips, ...	0 4 3
24. Common Turnips, ...	0 4 0
25. Carrots, ...	0 4 0

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